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A MANUAL OF NEURASTHENIA
(NERVOUS EXHAUSTION)

A MANUAL
OF
NEURASTHENIA
(NERVOUS EXHAUSTION)

BY
c
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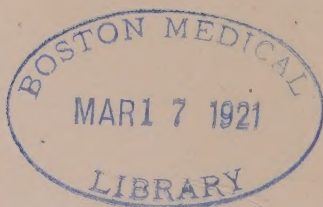
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TO
MY WIFE

PREFACE

SOME excuse is, perhaps, needed for writing a book devoted to Neurasthenia, when the subject has already received so much attention. But the reasons which prompted its production are many.

First, the disease is on the increase, and additional study is therefore required to enable us to evolve satisfactory treatment. Since the declaration of war in 1914, this has become even truer than it was when the author first commenced his work; and the nerve-strain to which the majority of workers in all belligerent countries have been subjected is already beginning to assert its sinister influence on the health of numbers of men and women. Secondly, in perusing the literature devoted to this subject, one is struck by the absence of books which, while giving a full and detailed account of the disease, yet do so without any personal bias of the authors as to the causation. Thus, one writer will commence his account by declaring emphatically for the psychical causation of Neurasthenia; while another will be equally positive that it owes its existence to physical causes. Again, while all text-books of medicine contain some account of this disease, small space is as a rule allotted to it, compared with that allotted to the minute descriptions with which organic diseases are favoured.

While the main conclusions reached in the discussions contained in this volume rest ultimately for the author

on his own clinical experience, yet he has been at some pains to collect the views of recognised authorities on functional neuroses, and to quote, wherever it has seemed desirable, from their works. The exclusive preference shown by many of these for the hypothesis of physical origin on the one hand, or of mental on the other, has made the task of steering between the Scylla of mind and the Charybdis of body a difficult one.

In this book, therefore, the author has endeavoured to lay before his readers a full account of Neurasthenia. The etiology of this malady is so wide, and the conditions which assist in its production so manifold, that it takes a bold man to state that any one cause can be responsible for every case of Neurasthenia. It is difficult to believe that every neurasthenic who consults a physician is suffering from an anxiety repressed, or an instinct perverted. On the other hand, we possess but scanty evidence that purely physical causes, such as intestinal stasis, can be responsible for the production of this disorder. But influenza is such a common precursor, that there is little room for doubt that the toxins of this disease exert a harmful effect upon the cells of the nervous system.

It is often said that the term Neurasthenia is used to cover a multitude of morbid conditions ranging from psychical disturbances to physical debility. An endeavour has been made in this book to show that, whatever the cause and however this acts, the malady presents constant, albeit variegated, features. It is as capable of recognition as, let us say, an endemic fever, although the objective signs are fewer than in some of these ailments. Whether the original cause is mental or physical, it is maintained that the resulting picture is the same, only the details differing.

Neurasthenia has suffered, as so many newly discovered territories suffer, from a limited knowledge of its boundaries. Now that its extent and limitations are being more widely recognised, and a greater interest is being exhibited by the medical profession in its features, the diagnosis will, it is hoped, be made with greater care, and, once made, its adequate treatment will be better understood and more successfully put into practice.

The modern conception of Neurasthenia places it among the neuroses and not among the psycho-neuroses. Those authorities who regard this disorder as mainly psychogenic believe that Neurasthenia is predisposed to by inheritance, and that the disorder is the direct result of faulty mental processes. The psycho-analytic school, in particular, regard this disorder as due to auto-eroticism. This, of course, is in direct contradiction to the views held by the earlier authors who wrote on this subject; for they swept into the etiological net every factor which, in their opinion, predisposed to the disorder.

Whatever may be one's personal view on this subject, it is necessary, in a work of this nature, to give the views of the various schools of thought, and this has been attempted in this book. The disorder whose symptoms we shall discuss under the name Neurasthenia has received a full consideration from both main standpoints, mental and physical. It will be found, moreover, that we have from time to time to trespass on the realms of neighbouring disorders. The symptoms of such a purely mental disorder as Hysteria will require brief mention, if only for the purpose of contrasting them, in order to make clear the diagnosis; and now and then we shall encounter mental symptoms which, while they belong

to other functional disorders, have complicated simple Neurasthenia by superimposition, or because, in some cases, they possess a common etiology.

The book is divided into two parts, the first devoted to the study of etiology, symptoms, physical signs, and diagnosis; the second to treatment in its different branches.

In Part I. the first chapter deals with introductory facts, and surveys the subject to be discussed as a whole. Chapter II. is devoted to etiology. The mental aspects occupy Chapter III., and are discussed under two headings—mental causes and mental effects. The succeeding seven chapters describe in detail the symptoms of Neurasthenia. The digestive abnormalities of this disorder are discussed in detail, and an endeavour has been made to describe the pathological conditions which underlie the neurasthenic “indigestion.” The headache, sensory and vaso-motor disturbances are discussed in Chapters VI. and IX. Chapter X. is devoted to a short discussion on Sleep, and the Insomnia of Neurasthenia. Those mental phenomena, formerly described as an integral part of this disorder—*e.g.*, phobias, obsessions—have not been included in the symptomatology, as they have been relegated, by modern nomenclature, to other functional disorders. Chapter XI. contains a discussion upon the diagnosis of this disorder, and its differential diagnosis from other functional disturbances, from organic nervous disorders presenting similar features, and from miscellaneous diseases.

Part II. commences with a general survey of the treatments which may be utilised in this disorder. Chapter II. describes the Hygiene of the Neurasthenic. It has seemed wise, in view of the importance of the subject, to devote

a chapter to the discussion of Diet, and its value in treatment. Chapter III. deals with this subject; while Chapter IV. describes the adaptation to the neurasthenic of the principles of diet outlined in the previous chapter.

Chapter V. is devoted to a discussion of the place occupied by drugs in the treatment of this disorder; while Chapter VI. describes the influence of climate upon the malady. The large and important subject of Psychotherapy receives a brief and, it is feared, inadequate treatment in Chapter VII.; but the subject is so wide, that only the bare outlines are able to be dealt with. Electro-therapy and its application to Neurasthenia occupies Chapter VIII. Here we have endeavoured to describe the chief methods in use, in order that the practitioner may have a general idea as to the utility of this form of treatment.

In Chapter IX. some especial methods of treatment are described, such as hydro-therapy, treatment by isolation (Weir Mitchell's method), and treatment by organo-therapy.

Chapter X. contains a summary of the subject, and a bibliography. In the list of books will be found the principal works dealing with Neurasthenia and with treatment, such as Hypnotic Suggestion, Psycho-Analysis, Electro-therapeutics, etc., in order that the methods referred to in this book may be studied in greater detail by those desirous of so doing.

The author wishes to express his grateful thanks to the Rev. Dr. Cobb for much help in many parts of this book.

I. G. C.

QUEEN ANNE STREET, W.

January, 1920.

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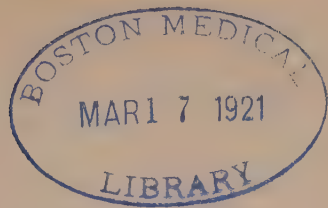
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A MANUAL OF NEURASTHENIA

PART I.—THE CAUSES AND SYMPTOMS OF NEURASTHENIA

CHAPTER I INTRODUCTION

THE first difficulty felt by anybody who enters on the study of Neurasthenia is caused by the wide divergence of views held by medical authorities, both as to its nature and causation. The student of functional nerve disease is compelled first to thread his way through the contradictions of his teachers, and he will frequently be at a loss for want of a canon which shall enable him to discriminate between apparently irreconcilable views.

The disease has even been ruled out *in limine* as being purely imaginary, or it has been declared pontifically to be identical with debility, or to be a hasty generalisation from an artificial collection of ill-defined symptoms. In support of this last view, stress is laid on the absence of definite physical signs, *i.e.*, features which are objective and which do not depend solely upon the sensations of the patient.

This view amounts to a statement that Neurasthenia has no existence *per se*, but is only an artificially constructed clinical concept, depending upon the individual observations of physicians whose opinions, according to this theory, vary directly as the sum total of the individual characteristics of the patients who have come under their observation.

However plausible such a theory may have been in the past, we are now fortunately in a position to dismiss it as worthless. Although lesions are not as yet demonstrable in the post-mortem room in patients who have been known to have suffered from Neurasthenia in their life-time, yet we now have a number of physical signs which are diagnostic when present, while some, to which reference will be made in detail in the chapter on Physical Signs, may be said to be pathognomonic of the status neurasthenicus.

At the present time, however, the discussion rages chiefly round the nature of Neurasthenia, whether it is a physical disease, proceeding from bodily causes and directly due to some fault in the physical system, or whether it is a mental disorder, due to abnormal mentality.

If we turn to the history of the malady—that is to say, to the earliest records of it as a clinical subject—we shall find that the originator of the name, Beard, writes with fluency upon its origin and lays stress on the causative factors. These he regarded largely as physical, and his views were shared by other early observers. He maintained that it was the direct result of the increasing pressure of modern life, and his opinion may be summarised by saying that the metabolic balance between expenditure and capital becomes upset, and results in a bankruptcy of the stimuli at the disposal of the sufferer, as shown by the many abnormalities so frequently present in typical cases.

Beard,* Arndt,† Weir Mitchell,‡ and others wrote

* *Boston Medical and Surgical Review*, April, 1869; *S. Louis Medical and Surgical Journal*, 1879; *Journal of Mental and Nervous Diseases*, Chicago, 1880.

† "Über Neuropatische diathese" (*Berl. Klin. Woch.*), 1875.

‡ *Fat and Blood* (with treatment of Neurasthenia), 1883.

expressing their views as to the etiology of the condition, and dealt at length with what they assumed to be the underlying pathology. Their views will be discussed later.

From that date (1868) to the present time, many contributions have been made to this abstruse subject. The recent work of Freud and his followers has introduced a further complication through the use of psycho-analysis, for which the claim is made that it can discover and cure those abnormalities which it is assumed are for the most part of mental origin. Some would even claim that all cases, whatever the assumed etiology, should be submitted to this mental technique.* To admit this would be to presume the psychical origin of all cases of Neurasthenia, for no physician, however ardent a psycho-analyst, would prescribe this treatment for a disease the origin of which was avowedly physical. Miller, in speaking of hypnotic suggestion, says: "The man, for instance, who treats a case of mental depression by psycho-analysis when the patient clearly needs a course of blue pills and Carlsbad salts, is either an ignoramus or a quack."† This statement would appear to the majority of students to be definite upon one point namely, that psycho-therapy, just like physical therapeutics, has its legitimate limits, and is in no sense a "cure all."

This being so, and there can be no doubt that this modern development of an ancient practice‡ has such limitations, we must assume its field of usefulness in

* See Articles by Stoddart and Cobb, *Medical Press and Circular*, April, 1915; also correspondence between Ash and Cobb, *ib.*

† *Transactions of the Psycho-Medical Society*, vol. iii., part i.

‡ Cf. *Incubation*, by Mary Hamilton, 1906; Deubner, *De Incubatione* (Teubner, 1900).

certain cases of Neurasthenia, but dispute its universal application.

For the same reasons, we are justified in regarding any scheme for the general treatment of functional nerve disease, which omits or discountenances mental medicine, as being incomplete. In such a "tangled skein" as we are dealing with, we are not as yet capable of strictly defining the exact treatment for any particular case, and, so far as we can see, we shall be unable to do so until microscopic pathology comes to the aid of the clinician.

On the other hand, physical causes there might be, and undoubtedly are, and it can most definitely be stated that these have, as every physician can testify, yielded in many cases to physical means. Hydrotherapy, electricity, massage, rest, etc., each has its field of usefulness and each has a proportion of cures to its credit. It is open in many cases for the critic to ascribe any and all of such cures to the "suggestion" underlying. But, as in cases quoted at Lourdes,* it can equally truthfully be argued here, that the patients are unbelievers and sceptics; and even if the suggestion is unconscious and it is further averred that its *absence* cannot be proven, the only answer is obvious—namely, that suggestion, when unconsciously given, has, *on these arguments*, more cures to its credit than when intentionally and carefully administered, for many successes follow these physical methods, and psycho-therapy has its due proportion of failures.

* For an interesting account of Lourdes, see *Spiritual Healing*, by the Rev. Dr. Cobb (Bell, London). See also Georges Bertrin, *Histoire Critique des Événements de Lourdes*, 1912; J. Jørgensen, *Lourdes*, 1914.

HISTORICAL.

Although the name Neurasthenia (Gr. *νεῦρον*, nerve, and *ἀσθενία*, debility) was only originated by Beard in 1868, there can be no doubt that previous observers had noted the constant correlation of certain symptoms and had grouped these together as marks of a definite disorder. So far back as 1843, G. Hersch described the nature of this disease in a way which corresponds entirely with our modern views.*

But it remained for Beard of New York to collect these scattered symptoms and to arrange them into definite order. To the clinical picture thus produced he gave the name of Neurasthenia. Previous to this time, little can be recorded of this disease, for the accounts are not sufficiently definite to enable us to trace undoubted cases. Certainly many such existed, but no nomenclature had been devised for their retention in detail.

Both before and after Beard's writings [1869, 1878, 1879 (three papers), 1880 (book), 1881 (book), *et seq.*], the malady was not sufficiently recognised by current authors to make its systematic study possible. In as recent a date as 1896, it is still found classified under "Hysteria," and this in spite of the ever-increasing mass of literature which many writers, mainly American, were producing. Still, it remained as an indefinite condition, and medical observers in the old world were loath to recognise it as a definite disease.

To Beard, therefore, belongs the credit of first recognising the condition and inventing the name—Neurasthenia. In 1880, he published *A Practical Treatise on*

* Martius, quoted in Oppenheim's *Textbook of Nervous Diseases*.

Nervous Exhaustion (Neurasthenia): Its Symptoms, Nature, Sequences and Treatment. This was followed, in 1881, by a sequel entitled *American Nervousness: Its Causes and Consequences.*

In the first of these volumes Beard laments, in the preface, the ignorance and credulity of the medical profession and laity on the subject of nerve exhaustion. He says: "In spite of its frequency and importance, neurasthenia, although long recognised in a vague way among the people and the profession under such terms as 'general debility,' 'nervous prostration,' 'nervous debility,' 'nervous asthenia,' 'spinal weakness,' and, more accurately, by some of its special symptoms and accompaniments, as 'spinal irritation,' 'nervous dyspepsia,' 'oxaluria,' 'cerebral and spinal anæmia and hyperæmia,' is even now but just beginning to find recognition in the literature of nervous diseases. It is at once the most frequent, most interesting, and most neglected nervous disease of modern times."

This book left the etiology of the disease to be discussed in the second of Beard's writings, then in preparation—*American Nervousness*. This followed so closely upon the publication of the first book (in fact, it was nearly ready for the press when *Neurasthenia* was published) that the two volumes may be said to be complementary to each other. Both books were a great success, and the first edition of each was rapidly sold out. Shortly after the appearance of *Neurasthenia*, Hugh Campbell of England produced a work on the same subject, which Beard himself, in the preface to the second edition, claims to have been founded on his (Beard's) writings. This work also had a large sale, and has since passed through several editions.

In 1868 Beard and Rockwell had published a work on Electro-therapeutics, in which Neurasthenia was discussed by Beard, and this forms his first contribution on the subject. He then classified all forms of nervous exhaustion under the one term, Neurasthenia. Afterwards, he amended this nomenclature and dubbed cerebral exhaustion "cerebrasthenia" while "spinal exhaustion" was termed "myelasthenia." He, however, draws attention to the fact that he regards these two conditions as separate parts of the same disease, and he comments on Erb's error in describing them as separate disorders.*

Beard's later writings on Neurasthenia were at once numerous and enlightening. He published several papers, all of which served to elaborate the thesis laid down in his books, but do not call for any extended notice here. In or subsequent to 1880, Weir Mitchell, Jewell and Rockwell (in America); Rosenthal, Landouzy, Brochin and Huchard (in France); Moëbius, Richter, Arndt, Ewald, Jahn, Kowalewski (in Germany); and Campbell, Le Gros Clark, Playfair, Dowse (in England), published works on this subject.

It is needless to say that these writings called forth the angry criticism which is the fate of all pioneers, and the subject remained for some years without further recognition. In fact, many critics in all countries heaped ridicule upon what they considered to be an artificially created disease; and it is only fair to state that some of the inferences drawn from the symptoms of the disease were inclined to be far-fetched. Beard himself, in one place, while discussing the laryngeal symptoms seen in Neurasthenia, quotes Morell Mackenzie as saying that he had

* *Nervous Exhaustion*, p. viii.

not seen any such cases.* Beard's rejoinder was to the effect that this was because Neurasthenia was more commonly observed in America; but, according to Campbell, it was fairly frequent even at that date (1878), and it may well be assumed that some cases must have come before so eminent a laryngologist as Mackenzie, and, had the English physicians investigated at all widely along the lines of functional nervous diseases, they would have been cognisant of their nervous origin.

But it is a sad fact that very little attention was paid by the great majority of the medical profession in all countries to Beard's writings. Many critics disposed of his theme and observations as quite unworthy of credence: while even sympathetic students of these subjects doubted the truth of his statements when applied to so intangible a disorder. It is only fair to say that Beard's (and others) style of recounting their observations lent itself admirably to hostile criticism; for his statements often lacked support, and his symptomatology showed too great a leaning towards hasty generalisation. In his endeavour to include all possible symptoms which might lead observers to correctly diagnose this new disease, he assumed as abnormal certain symptoms which had not hitherto been recognised as being otherwise than normal, or at all events, were so widely possessed that they had not until this date been looked upon as a part of the symptoms of nervous disorder.

At this time it may quite truthfully be said that the phrase "functional nerve disease" was used to indicate such disorders as epilepsy, migraine, hysteria, and hypochondriasis. To-day the most commonly seen member of this genus is Neurasthenia. It is rampant in

* *Nervous Exhaustion*, p. 22.

all large cities, occupies a large place in both hospital and consulting-room, constitutes the bulk of the patients who consult neurologists, and forms a large percentage of the general practitioner's work.

In the literature of the end of the last century, it is interesting to note how the existence of Neurasthenia as a specific disease gained recognition in textbooks. This began by the wider employment of the term "Neurasthenia"; but during the two decades 1880-1900, it was generally described as a sub-heading of Hysteria. In the index of a well-known medical work these two conditions are classified as identical, and Neurasthenia is summarily dismissed as a "low form of hysteria." This was about thirty years after the discussion of the disease inaugurated by Beard.

Many different accounts have been written of the characteristics of this disorder, but all authors are agreed upon the main points, and these are practically identical with those Beard laid emphasis upon. Not only has little been added to what was then known, but the succeeding years (certainly up to the beginning of the present century) were practically wasted so far as further work on this disease was concerned. This does not amount to saying that the disease was altogether lost sight of, but that it was either ignored or regarded as of very little importance compared with those diseases whose lesions were demonstrable by the microscope. Little attention was paid to its further investigation, and the contributions to the leading medical journals in most countries (from time to time), were scanty. It is true that many articles were written, but the great majority of these were but recapitulations of earlier articles.

During the ten years from 1900 to 1910 much work has been done on this subject, and many interesting sidelights have been thrown on the disease, both as regards its etiology and symptomatology. Unfortunately the equally important branches—pathology and treatment—cannot be said to have progressed so satisfactorily.

In 1899 Dr. T. D. Savill, of London, published a book containing some Clinical Lectures on Neurasthenia which he had delivered at a London hospital. These formed an important contribution to the study of the disease, as they contained much that was new and were the fruits of a ripe experience and sound judgment. Dr. Savill was not content to regard this nerve disorder as incurable, but was optimistic in his outlook, which view seems to have been well supported by his own results. These lectures were accompanied by practical illustrations, and, when published in book form, found many readers.

From that date the study of Neurasthenia has made rapid strides, and amongst medical men it has received almost as much attention as is its due. This is evidenced by the frequent discussions at medical societies on the different aspects of the disease, its inclusion in all standard textbooks on medicine and neurology, and the frequent and interesting contributions on the subject to all medical papers. In January, 1911, *The Practitioner* devoted its entire contents to this subject. The disease was discussed from all standpoints, and recognised authorities contributed the articles on their especial branches.

For some years more interest has attached to one variety of Neurasthenia—namely, Traumatic Neurasthenia—than to the more common forms, principally

because of its relation to malingering. So many legal actions have been fought in which this condition was cited as a consequence of railway collisions and other accidents that its full study became imperative. The subject has now been widely recognised and has received that investigation which was so urgently needed.

As a result of this there has been a development of the interest in Neurasthenia in a direction not wholly desirable—to wit, its minute study by the laity. For many years after the name had been adopted, the public (following in the footsteps of the medical profession) insisted in regarding it as synonymous with hysteria (in fact, many lay people to-day think that the two conditions are identical). The loose way in which “nerves” are referred to as being accountable for this and that ailment is, no doubt, partly responsible for this state of affairs; while the readiness of the average individual to believe the self-adulating advertisements of charlatans, who claim the power to cure “nerves,” easily keeps up the general idea of “nervousness.”

* * * * *

We have now reached the era when Beard's views had been subjected to criticism, and when the psychological school had begun to take an interest in Neurasthenia, and had subjected it to an investigation from the point of view of mental causation. To see how this was brought about, we must digress for a short time to glance at the history of a sister-disorder, Hysteria.

Originally considered to be due to a “wandering of the womb,”* for years after the phenomena of Hysteria had been claimed by the medical profession as coming within their scope and not within the province of seers and

* Plato, in *Timæus*.

spiritualists, it was believed that physical agents were the cause of the convulsions, the paralyses and the "attacks" to which the hysteric is subject. Charcot, however, showed that behind these occurrences were mental factors, to which they owed their origin. Moëbius and others confirmed this view, and maintained that the disorder owed its origin to "mental representations." From that time to the present day, when the psychical nature of hysteria is universally believed, there has been no return to the old-fashioned view that hysteria was a disease caused by bodily abnormalities.

A similar change has attended the development of the conception of nervous exhaustion. Since Beard's time the syndrome which he outlined has been subjected to the scrutiny of observers in all countries, and while some have tended to change the meaning of the term, all have agreed that its use in the past has been too loose, and that too many symptoms have been included under this term. To understand the changes in the use of the term we must glance, albeit briefly, at the criticism which has been levelled at Beard's conception during the last forty years.

We have already seen that Hysteria, when subjected to a critical examination, was shown to be essentially idiogenic. The great workers in this field of medicine subjected Neurasthenia to a similar analysis, to discover the cause of the undue exhaustion which characterises the malady.

We must emphasise at this stage that, in Beard's opinion, Neurasthenia was a nervous exhaustion in which the physical nervous system was at a lower potential than normal. Now this view is unsatisfactory for two reasons: first, because it is indefinite, it does not say *why*

such exhaustion takes place; second, because it places, more or less arbitrarily, the fault in the neural system, taking no cognisance of the higher levels (psychological) in which the failure of functioning might be located. For these reasons, then, students of these disorders sought to place the failure a little more definitely.

The great masters of psycho-pathology, Janet, Freud, Déjérine, Dubois, Morton Prince, and others, have made intimate studies into the nature of this disorder, and in doing so have, in some instances, cleared the ground from much of the litter left by the physicogenic school of the nineteenth century.

Psycho-pathology and its servant psycho-therapy made a determined onslaught, at the end of the nineteenth and beginning of the twentieth century, upon the strongholds of those who could only think of these disorders in terms of protoplasm. So strong had been the reaction from Beard's views, that the pendulum tended to swing from its former position of physical causation to a completely opposite station, just as the crass materialism of the Victorian Era led to a reaction marked by the great interest shown in non-materialistic studies.

Neurasthenia, then, was kept in the terminology, but acquired different meanings according to the author using it. And many authorities were laying stress upon the fact that the undue fatigue might be of mental origin. It is unnecessary here to discuss in detail the different interpretations placed upon the term by the many writers who have dealt upon this subject; but perhaps we might glance briefly at the views which have evolved from their labours.

The psychogenic school maintains arbitrarily that Neurasthenia is due to mental causes. This school is

agreed that the fatigue results from an over-use of psychical "horme,"* due to the presence of mental conflict.

Those who follow the teachings of the psycho-analytic school maintain, with Freud, that the symptoms of Neurasthenia are of sexual origin; to be more precise, they regard the fatigue which characterises this neurosis as being due to auto-eroticism. The important point is that this school believes that this is the sole cause, and that Neurasthenia, as a clinical entity, is caused in no other way. The combination of undue and excessive fatigue with gastro-intestinal symptoms and headache, a syndrome to which all admit the name of Neurasthenia may be given, is, in the view of these observers, caused in this way.

In this volume we cannot confine ourselves to an etiology of this kind; but must collect the views held by different schools of thought and offer them for the consideration of the reader. We shall deal at greater length with this part of our subject in the following chapter.

DEFINITIONS.

Before beginning the study of the etiology of Neurasthenia, it will be best to discuss in some detail what exactly is meant by the term Neurasthenia. This will necessitate some rather lengthy references, but, when we consider how loosely the term is often used, it will be clear that to obtain a satisfactory idea of a condition that is definite enough, we must state clearly and concisely what we mean when we describe a patient as suffering from Neurasthenia.

* To make use of Jung's word.

Unfortunately, any definition must perforce be long, in fact, it is rather difficult to define the term, and most authors are satisfied by a description. In Beard's first work,* no attempt at a definition is made, and the writer spends a long chapter describing the symptoms in detail. He says that the features of the disease are the manifold subjective signs, and, having discussed the reasons for the neglect of so important a study, he at once passes on to a description of the symptoms.

In the sequel to this work,† Beard commences by stating what Neurasthenia is not, which is perhaps more satisfactory than leaving it totally undefined. He emphasises that "nervousness is Nervelessness" or a lack of nerve force: he states why he terms it "American Nervousness," and dilates upon "nervous bankruptcy," and the need of reserve nervous force, and having made some differentiations between functional and organic nerve disease, he passes on again to discuss the signs of the malady.

These two books deal in an able manner with what Beard regarded as the characteristics of the condition; but anything approaching a concise definition is lacking. It may be that it was not possible, at the beginning of the study of a newly recognised condition, to define it accurately; but since that time we have found out further factors which are sufficiently characteristic to enable us to piece them together into a description which, if it could not be strictly regarded as a definition, yet should be fairly concise and generally regarded as accurate. It is, therefore, all the more to be regretted that there are still authors who dismiss this subject

* *Neurasthenia*, Wood and Co., New York, 1880.

† *American Nervousness*, Putnam, New York, 1881.

as indefinite. Paton* commences an article on the treatment of Neurasthenia with the following illuminating sentence: "As everyone knows, 'neurasthenia' is not the name of a specific and definite disease, but merely a convenient term for a very varying congeries of symptoms produced by many different causes." Anything more misleading than this statement it would be hard to devise. For to say that Neurasthenia is *not* a definite condition is as illogical as to dismiss measles as a specific disease, because the rash varies in different cases. It is not claimed that this condition is specific, although such a claim might well be justified. The dictionary definition of specific (used in the medical sense) is "having some distinct or definite pathological property: distinguishing or determinate. . . ." The condition of Neurasthenia is certainly "distinguishing and determinate," as any clinician in touch with this disorder will testify. It gives the same signs and symptoms (albeit the range is large) in every case, and, when the diagnosis of the condition is made with care, it is as positive in its status as that of any organic lesion.

The reason for this unsatisfactory view is not far to seek. From Beard to modern writers, all have discussed the manifestation and symptomatology of Neurasthenia at length, but have neglected, in almost every case, to give the reader a plain straightforward definition, as brief as is possible and without embellishments from the respective authors' case-books.

In many articles on this subject, which the present writer has studied, not one author attempts an accurate

* "Treatment of Neurasthenia by Diet" (*Practitioner*, January, 1911).

description, but all give their views of the etiology and symptomatology, leaving the treatment, in many cases, in as unsatisfactory a state as they have the description. Is it to be wondered at, therefore, that a very hazy idea exists as to the exact meaning of the term "Neurasthenia"? Patients are told first one thing and then another by successive medical advisers, with the result that the laity are still prone to regard Hysteria and Neurasthenia as identical.

It may be said that previous writers have abstained from attempting a definition because they regarded it as more scientific to deal with all the manifold aspects of a new conception, before attempting its accurate description. Nevertheless, the practical study of this new subject makes it eminently desirable to have a working knowledge of what we are going to consider, so that we may appreciate the better the many and diverse factors which enter into its composition.

Let us turn, then, to the conceptions which are generally held as to the real nature of the disease. The investigations of Kräpelin and Rivers showed that the defect of objectivity in Neurasthenia depended less upon the inefficiency of the disease than upon that of its observers. In other words the signs are there, but the observation is lacking.

Clifford Allbutt says: "Neurasthenia is, then, no mere hotch-pot—no limbo into which odds and ends of unconsidered neurotic trifles are to be thrust away for lack of definite affinities: nor is it a sham, nor a figment of complacent physicians. Yet the varieties of the disease, and the wheels within wheels, are so many, and in apparent diversity so bewildering, that the essential unity of the process long lay hidden. Moreover, the

particulars are apt to gather in sub-groups, and to form fairly consistent and important series subordinate to the larger type: but the nature of these several lower and subordinate constellations of symptoms has been worked out by an analysis and a training in exact observation which were scarcely at the disposal of our forefathers in physic. It were scarcely to be expected that the clouds of neurasthenia should always gather over the whole body alike and at once: and they do not."

This brilliant writer and careful observer continues: "The depletion of potential energy is various in its centres, sub-centres, directions, and degrees; now this region is in low pressure, now that. The nature and significance being uniform, the manifestations break forth here and there according to the seat of inward frailty or the incidence of the external causes in the particular case. Thus, though the therapeutical principles are consistent, their application is various." In another part of the same article, the author says: "It was said by a witty American that in hereditary cases we must begin by treating the patient's ancestors: it might be said of all the cases, that we must begin by treating the physician."*

The views Sir Clifford Allbutt here stated are shared by a number of other observers. In fact, the generally held opinion at the present time is that the constituent features of Neurasthenia are so constant as to justify us in regarding them as forming a definite characteristic concept.

Savill† says, in speaking of the difficulty of giving a

* *System of Medicine*, Allbutt and Rolleston, vol. viii., pp. 743-744 and p. 776.

† *Neurasthenia*, 1906, p. 26.

satisfactory definition: "In order that we may have a common train of understanding, I may say that I regard Neurasthenia as a generalised irritable weakness of the entire nervous system, characterised (when the brain is affected) by hypersensitiveness of the sensorium, loss of mental and bodily vigour, inaptitude for work, disturbed sleep, and irritability of temper; and (when the spinal cord is chiefly affected) by general muscular weakness, restlessness, nervousness, and vague pains; and usually accompanied (in both forms) by various phenomena referable to the vaso-motor and sympathetic systems."

The disease is popularly defined as "a functional derangement of the nervous system with depression of the vital forces due to prolonged overwork or nervous strain."* This is the commonly accepted view of the condition, and contrasts very favourably with many that have been published by some medical authorities. Dorland, in the *Illustrated Medical Dictionary*, defines it thus: "Nervous prostration: depression due to the exhaustion of nerve-energy. The name for a group of symptoms resulting from some functional disorder of the nervous system with severe depression of the vital forces. It is usually due to prolonged and excessive expenditure of energy, and is marked by tendency to fatigue, lack of energy, pain in the back, loss of memory, insomnia, constipation, loss of appetite, etc."

This description summarises in brief a few of the characteristic features, but makes no attempt at their differentiation into mental and bodily, or cerebral and spinal.

There has been a tendency in the past to divide Neurasthenia into many sub-divisions, but this is unnecessary

* *The Standard Dictionary*, 1915.

and cumbersome. Furthermore, the symptoms are all dependent upon a central lesion, and it is therefore misleading to speak of "gastric neurasthenia," "sexual neurasthenia," "spinal neurasthenia," and so on. It also has the additional disadvantage of giving the wrong impression that there are many kinds of Neurasthenia. There is only one nervous exhaustion, just as there is only one central nervous system, but there are degrees of fatigue and there are different parts of the nervous system, and we should therefore expect wide variations in results.

Savill divides Neurasthenia into "cerebral" and "spinal" and says, very truly, that the two are always blended, and are rarely, if ever, seen separately. The majority of medical authors are agreed that the best sub-division is this, and that, if the nomenclature is once sub-divided according to the organ affected, there will be no limit, and every symptom of this functional disorder will have a separate appellation.

Tanzi's definition* is: "Neurasthenia is a state of habitual valetudinarianism with no corresponding characteristic organic lesion." This leaves little to complain of on the score of brevity, but might possibly be made a little more like a description, and a little less like an epigram. Tanzi's views on this disorder are rather different from those commonly held, and his symptomatology is original. For instance, in speaking of "constitutional neurasthenia," he says "constitutional neurasthenia, like acute (and traumatic) neurasthenia, may be divided into two clinical types, according to the presence or absence of imperative ideas. But even if imperative ideas are present, the neurasthenic is never a sufferer

* *Textbook of Mental Diseases*, Rebman, p. 540.

from true mental disease, because his consciousness remains unclouded and his personality intact.”*

Mott† gives the following definition: “A condition of irritable nervous weakness. The term was introduced by Beard to cover a large group of symptoms pointing to either general exhaustion or special exhaustion of some particular function of the nervous system—*e.g.*, cerebral, cardio-vascular, sexual, gastro-intestinal.”

The above-mentioned views as to the nature of Neurasthenia are taken at random from various literature on this subject, and they show that, while there are many diverging views as to smaller points, the general outline of the malady is agreed upon.

In some modern textbooks of nervous disorders, the term Neurasthenia has been narrowed down even more than in the works of the earlier psychogenic school. For instance, Stoddart‡ confines the term to a malady characterised by nervous exhaustion which makes its appearance in early adult life. Discussing the diagnosis of this disease, he distinguishes it from “chronic nervous exhaustion,” which he says is sometimes called “acquired neurasthenia.” “Chronic nervous exhaustion differs in being a disease of middle life, usually traceable to some exhausting influence on the nervous system. The other essential difference is that peripheral analgesia is present in chronic nervous exhaustion, at least in the earlier stages.”§

* The views expressed by Dubois of Berne, Eichhorst, and others, would lead us to suppose that Neurasthenia is a disease composed of and caused by morbid ideas, and having no physical basis. See also Janet's *Psychasthenia*.

† *Practitioner's Encyclopædia of Medicine and Surgery*, 1913.

‡ *Mind and its Disorders*, third edition, pp. 212 *et seq.*

§ *Ib.*, p. 216.

This author is equally definite as to its etiology, about which we shall have more to say later.

With such a diversity of opinion, it is hardly possible to offer a definition of this malady. We can, however, describe it briefly, so that the reader will have a clear idea of its features from the clinical standpoint.

Neurasthenia is a condition of nervous exhaustion, characterised by undue fatigue on slight exertion, both physical or mental, with which are associated symptoms of abnormal functioning, mainly referable to disorders of the vegetative nervous system. The chief symptoms are headache, gastro-intestinal disturbances, and subjective sensations of all kinds.

CHAPTER II

THE ETIOLOGY OF NEURASTHENIA

THE factors to which the occurrence of Neurasthenia has been attributed in different writings are many and various. In this chapter an attempt will be made to refer to the principal causes which, from time to time, have been blamed for producing Neurasthenia; and these will be described and criticised.

Even if the sole cause is, as believed by the psycho-analytic school, a mental one, due to the repression of an auto-erotic complex, and the other causes to which we shall refer only subsidiary, yet, in a study of this kind, it is necessary to discuss all possible causes in some detail, in order that the reader may be conversant with the views held by different schools of thought.

We shall study, therefore, the causative factors from the standpoint of Sex, Class, Age, Heredity, and Physical Agents, leaving the study of the mental factors to the subsequent chapter.

SEX.

It is agreed that the preponderance of Neurasthenia occurs in the male sex, but only slightly so. In women it is believed to be more frequently seen in the educated classes, and for reasons which may appear paradoxical at first glance. It occurs in the upper classes from lack of occupation (or shall we say it is seen in patients

who lead easy lives ?); and it is extremely common in young women who work hard, and often at high pressure. Thus it is the frequent result of " cramming " for examinations at schools and universities (Allbutt); it follows the sudden necessity for bread-winning; and it is seen in the lower classes who are " sweated " with long hours accompanied by insufficient nourishment and little fresh air.

This apparent contradiction simply points to different causative agents. In the woman of leisure we have the " *tædium vitæ* " (which Beard so emphasised), resulting from efforts at " killing time." The fatigue in this case is central, and introspective in its action. The result is a slowly acting exhaustion, which, in the absence of *any* other discoverable reason, we must assume to be capable of producing Neurasthenia. This is an established fact and is constantly shown by those whose practices include patients of this class. It is, of course, possible (and this should be remembered) that there may be other reasons co-existing which are not detected. Emphasis should be laid upon the fact that the condition resulting in these patients is not one of laziness, hysteria, or " *maladie imaginaire*," but a definite state of nervous exhaustion, showing the signs and symptoms which are characteristic of Neurasthenia, all of which cannot be simulated even in those desiring sympathy, or seeking to malingere. On the contrary, as will be seen later on, the neurasthenic is anxious for a cure, and does not revel in the morbid state. Introspection is a constant feature, but this is not tantamount to a desire for the continuance of ill-health. Rather might we truly say that the sufferer from nervous exhaustion is introspective, *not from the*

love of self-examination (in contradistinction to the hypochondriac), but rather from his mere anxiety for relief.

There do not appear to be any specific factors in women which may be said to produce this condition: many illnesses peculiar to the female are conducive to Neurasthenia, but no condition can be said to lead to it inevitably. The exhaustions consequent upon childbirth, the irregularities in the catamenia and the menopause, and other critical events in the life of females, are certainly events predisposing to Neurasthenia.

In the male, also, there come times when undue strains are able to pave the way for nervous exhaustion. Such milestones as puberty, adolescence, the one or two serious illnesses which most people contract in the course of their life, are times when we should anticipate the possible sequence.

Statistics as to the relative frequency in the two sexes help us little, as they differ widely. Men are slightly more affected than women, according to the generally accepted view. This may be partly due to the fact that more men lead strenuous, anxious, and hurried lives than women. It is this factor (the constant hurry, anxiety, and endeavour to compress work into inadequate time so as to afford greater leisure) which plays such an important part. Physical exertion is of little import in the production of Neurasthenia, and so we need lay no stress on the greater athleticism of the male sex. It is not this which in any way adds to the number of male neurasthenics, but rather the instability of the nerve-centres, as a result of their constant response to stimuli, and the tension which they are called upon to exert. Immediate response

cannot be expected from a sluggish organisation; therefore the man who relies upon quick response must perforce expect some future hitch in his machinery.

It is, then, the hurried life and its consequences which produce the preponderance of men over women in this disorder; but this is only one factor, and it must be borne in mind that it is only of limited applicability. Many other factors, common to both sexes, have to be considered, and, as previously stated, Neurasthenia is frequently not the result of one factor, but of many. This must be remembered whenever we seek to study its causation and incidence.

CLASS.

There is a commonly accepted view that Neurasthenia is a disease of the upper classes, and it is not unusual for it to be regarded as the just reward for a leisured life. But, however meritorious such a view may be, the facts do not support it. Observers who have studied its incidence have shown that, even when considering all etiological factors, Neurasthenia claims as many victims from among the lower classes as it does from among the cultured.

Some authors even go so far as to maintain that it is commoner among the peasant class and is consequently a disease of "simple life." In the table adjoined it will be seen that a slight preponderance of Neurasthenia occurs among the working classes. Petré, from whose observations the table has been compiled, was of the opinion that it was from the upper classes that most authors had drawn their material, and had based their views upon the patients met with in a consulting practice. This criticism would appear to be justified, as many

observers, commencing the study of Neurasthenia with a bias in favour of this view, have enlarged upon it by data from their private patients.

Such was the result of Playfair's work, and his opinion was that the disease was only met with in the upper classes. In England, curiously enough, most observations seem to have been made among the well-to-do; and data from the working classes are nearly all gleaned from Continental observers. Martius believes that it is at least as frequent among labourers, peasantry and rustics as it is among their betters; and he thinks that the nervous system suffers as much from bumping for

<i>Petrén's Table.</i>	<i>Total Number.</i>	<i>Number of Neurasthenics.</i>	<i>Percentages.</i>
Men of upper classes ..	226	30	13.3
Men of middle classes ..	159	21	13.2
Men of lower classes ..	609	90	14.8
Women of upper classes	302	20	6.6
Women of middle classes	244	16	6.6
Women of lower classes	940	108	11.4
	2,480	285	

miles in a springless cart as it does from travelling long distances in express trains.

Other observers agree with the views of Petrén and Martius; but Mitchell Clarke says that it is essentially a disease of brain-workers. As this view is held almost entirely by those who practice among such people, it may well be regarded, to use Clifford Allbutt's dry verdict, "as the prepossession of consultants occupied with the middle and upper classes of society."

It is obviously straining a point to attempt to prove that Neurasthenia follows any particular occupation. Professional men are always leading busy and hurried lives: using their brain too much and their muscles too

little; and often "burning the candle at both ends." Such a life obviously strains their mental reserves and, even if it never actually produces, it paves the way for nervous bankruptcy. This class, then, must present a large number of neurasthenics, and if we state this fact broadly, we shall probably have gone as far as is justified. Jendrassik says that it is rife in the scholastic profession; and other observers have expressed their opinion that medical men are especially prone to the malady. Such argument is, however, to be deprecated, or we shall soon have reached the stage when all occupations have their distinctive penalty attached to them.

We may safely assume, then, that there is no marked difference in the incidence of Neurasthenia among the classes: that its apparent preponderance in the superior class is rather the result of the observation than in accordance with fact: and that it occurs in all people and all ranks in not markedly disproportionate figures. The elements which conduce to it are so many and varied that it is impossible to limit it to one class, for this would be falsely confining its etiology. If it occurs among brain-workers only, the mother of a large family in the artisan class has no business to be found to be suffering from the disorder. Therefore, where the causative factors appear to be so many, limitation of its incidence against the facts is "apt" to lead us into error.

AGE AND HEREDITY.

In the older writings on this disease the age at which Neurasthenia was most commonly seen was said to be during the decades 30-50. In the more recent classifications, where Neurasthenia is differentiated from "chronic nervous exhaustion," the age incidence of the

former disorder is given as adolescence.* But, regarding Neurasthenia in the more general meaning of the term, it is among the brain-workers in the third and fourth decades that this disorder is most usually seen.

Among professional men, then, this is the most active time of their lives, for it is during these decades that they are usually working hard at ambition's call and striving to make a fortune. Many instances of this disorder occurring at this age have come to the notice of the writer, especially where men combine a strenuous working day with the search of arduous pleasure at night.

In women the most fruitful age for Neurasthenia to make its appearance is uncertain. Apart from the obvious causes which produce it, and which come on at varying ages (*e.g.*, puberty, child-birth and the menopause), the middle era of life would possibly prove to be the commonest.

It is still disputed whether it is seen in the child, although many maintain that there is a tolerable frequency of this disorder in childhood.† Allbutt is of the opinion that many such cases would prove to be either dependent on definite faults of alimentation, or to be organic in nature combined with temperamental defects.

Probably the truth lies midway: and such cases occur, although their frequency has been exaggerated. It is again a question of accurate and painstaking diagnosis

* In these writings, Neurasthenia is essentially a disorder of young adults, and the age-incidence is the chief difference between the two complaints. Also the sexual origin of Neurasthenia is, according to this school of thought, established; so that many of the cases to which we now refer as Neurasthenia would, by these authors, be regarded as cases of "chronic nervous exhaustion."

† See Campbell Smith, "Neurasthenia Minor" (*Practitioner*, January, 1911).

revealing what the underlying condition really is. Adolescence, again, is a period when circumstances of life may prove too strenuous for the nervous system, and a condition of nerve exhaustion results. Such cases as follow university training with strenuous mental exertion for examinations are more to be attributed to the occupation than the age, and I am of the opinion that the majority of cases developing at these ages can be traced to some definite cause—*e.g.*, overwork, anxiety, etc.

In 103 cases which came under the notice of Savill the age incidence is quoted as follows:

3 in the decade 10-19.		
20	„	20-29.
33	„	30-39.
28	„	40-49.
16	„	50-59.
2	„	60-69.
1	„	70-79.*

It will be seen how great is the preponderance in the middle years of life—81 of these cases being in the three decades 20-50. Savill also noted a slight predisposition in the male sex, 55 as compared with 48 in the female.

These statistics confirm the generally accepted view, with regard to the age incidence of Neurasthenia, and they are quoted in full for this reason. It will be seen that up to middle age, the tendency to its development slowly increases: and decreases from that time onwards.

In discussing the relation of heredity to Neurasthenia, we must bear in mind that we are dealing with a problem which can only be dealt with on presumptive evidence with such support as may be supplied by statistics. The

* Savill, *Lectures on Neurasthenia* (Glaisher, London).

whole question of the influence of heredity is still so unsettled, that its bearing on this particular disease renders discussion difficult.

The weight of opinion in this subject is in favour of the factor of heredity playing an important part in the production of neurasthenia. It is a commonly observed fact that some people are so constituted that their reserve of defence against invasion is so scanty that they readily fall a victim to the first invader. Others can withstand almost any distress or strain without suffering harm. It would seem that the first class of individual is always near the utmost limit of his possibility of expenditure, and that any additional demand, however small, produces bankruptcy. So long as the hand of the clock is at noon, all is well—five minutes past the hour results in breakdown.

Such a system might conceivably be the product of a lowered vitality in the progenitors. Its possessor starts life with a bias in favour of trouble rather than with a large reserve of resistance which is always at hand to be drawn upon when required. It follows that an attack which probably would be withstood successfully by a healthy man or woman with no trace of "nervous inheritance" in the family history, would produce disastrous results in the possessor of the neuropathic diathesis. This quick surrender to undue strain is what may be called pathognomonic of the hereditary aspect of Neurasthenia. It would be impossible to maintain that the malady can be directly inherited: it is equally futile to argue that heredity plays no part in its production, and that it is entirely dependent on conditions of life of the patients themselves. For we know by countless instances that though the first factor to be reckoned with

is the soil in which the seed is planted: yet the second is that the success in germinating achieved by any particular seed depends upon the suitability or otherwise of the soil to the power latent in the seed.

In Neurasthenia, some *definite* neuropathic lesion can be ascertained to have existed in the patient's ancestors, in a certain proportion of cases, whilst others show an apparently clean sheet in this respect. The important point is, the proportion between the resistance of the individual and the severity of the strain applied. If the resistance is, and always has been, unconquered, the odds are all in favour of the attack failing; on the other hand, given a suitable field, and a previous failure of resistance, either in the patient himself or in his immediate ancestors, then may we anticipate the success of the attack.

This is, of course, only another way of emphasising the previous point, and of stating that certain inherited dispositions tend to give way easily to strain, and if delicately balanced to become changed from the normal to the abnormal and disorderly acting nervous system. Exactly the degree of strain (and by this I include any agency which has a deleterious effect on the organism) required in any particular case, must depend upon the predisposition which exists: and this, in turn, must perforce be dependent upon many and wide causative factors.

So far as heredity tends to lower resistance, most physicians are agreed upon its power in this respect. That it is able to start the child with every chance of its succumbing to the strain, when this comes along, can scarcely be denied. Campbell Smith* has described a

* "Neurasthenia Minor" (*Practitioner*, January, 1911). See also translation of Ballet's *Neurasthenia* by the same author.

condition which he has named Neurasthenia Minor, and which is an early edition of nerve exhaustion seen in children. He lays stress upon the importance of heredity and the part it plays in the production of Neurasthenia. He refers to "indirect heredity," and says: "Thus it seems manifest that the nutrition of germ-cells must be influenced by metabolic and secretive abnormalities in the body that contains them, and consequently that children may suffer from such abnormalities as their parents. It will be seen at once that such malnutrition of germ-plasm, resulting in malnutrition of offspring, is altogether a different thing from heredity in the sense in which that term was used by Mendel, and that it justifies Dr. Feré's expression, 'loss of heredity.' This may explain the inability of Mendel's followers to bring nervous diseases under their laws. It also helps to explain the phenomenon of indirect heredity: what is transmitted is not definite disease but malnutrition manifesting itself in diverse ways."

This passage is of importance because it not only shows how the neurasthenic condition may commence at an early age, but it also offers a theory which explains what may happen in inherited neuropathics. It is a likely supposition that the general malnutrition (which word is used in a wide sense) from which the parent suffers may affect the offspring, producing in him a system which is potentially exhausted at an early age.

We may fairly assume, then, that the material with which an individual starts in life has an important bearing upon what his future life will be: and in this particular connection especially so. For a sound and well-balanced mind and body offer but little chance for the development at any age of the neurasthenic condition;

while the possessor of a nervous system, which has been tampered with in its production, is never safe from the possibility of such developments, provided the suitable stimulus is supplied.

PHYSICAL CAUSES.

We now come to consider the many physical causes of Neurasthenia. There is abundant evidence as to the part played by purely physical lesions, and many of the unhealthy conditions to be discussed under this heading are acknowledged to be fruitful sources of Neurasthenia. The more common and better recognised antecedent abnormalities we will deal with first, but let us not forget that many cases of this distressing malady show neither discoverable physical nor mental causes. These cases are referred to by Sir T. Clifford Allbutt when he says: " May we not fairly infer, then, that the theory of Neurasthenia will be one consistent with these simpler instances [the writer refers to simple overwork, mild intoxications, etc.]; that it will not consist primarily in vascular or nutritive hypoplasia, nor in toxic states, however accessory they may be as aggravating factors: that it will prove to be a " non-specific " state, one to which, on sufficient disturbance, every nervous system is liable, and of itself liable, without co-operation of vice or defect in any other system, humour, or particular part of the body."* Bearing this in mind, we may proceed to study in more detail the physical causes of Neurasthenia. The division into mental and physical, however, it must be understood, is adopted purely for convenience, and this distinction is arbitrary, as some of the factors are common to both, and none of them can be truly said to have been proven to belong exclusively to either mind or body.

* *System of Medicine*, vol. viii., p. 737.

A.—*General Malnutrition.*

The success which follows many of the cases treated by the method originally popularised by the late Dr. Weir Mitchell would seem to prove that, in whatever way the lesion is produced, it is essentially in these patients a fault of metabolism. As, however, in this treatment hyper-alimentation is associated with enforced rest, seclusion, massage, etc., other factors may conceivably be concerned. It has often been stated that the fat neurasthenic is the most difficult to cure, and the present writer is also of this opinion. The patient who develops the malady, and loses flesh previously, suffers from a falling blood-pressure, debility, weakness (which soon becomes asthenia), and is a typical example of Neurasthenia from malnutrition. Now we have to decide in what manner loss of flesh produces nervous exhaustion. Is it a simple starvation of the whole system, in which the delicately balanced neurones suffer most, or is it a selective diastasis of the general nervous system leading to exhaustion? Is it a lowering of the action of the vaso-motor centre, inhibiting free blood-supply to the nerve centres, and dislocating the nutritive action of the sympathetic and central nervous systems? The answer would be easier did we but know more of the law of cell-activity, how the cell obtains adequate nourishment and in what manner this is regulated. Now, this cell vitality depends, so far as is known, upon the diffusive rate in its territory, and Ross has shown how variable this is. The total amount of nourishment absorbed from the food being lowered, two courses are open to the body: it would either rest content with lowered nutriment, or it must draw upon its re-

serves to feed its more important and vital structures. In any case, extraneous sources being reduced and its pent-up stores being not inexhaustible, sooner or later these must be used up.

Thus in either case we reach the stage of starvation, a lowered cell diffusion and a consequent deficient functioning of the units of the body. The finer actions—those last developed—to wit, intellect, fine co-ordinations, etc., are first affected, as they should be, according to these assumptions. And so it proves to be in Neurasthenia, with its faulty concentration and deficient attentive control, its vaso-motor abnormalities and the failure commonly seen to persevere and bring to successful conclusions tasks requiring fine and delicate manipulations whether of mind or body.*

“ If it be true that in many such persons the nervous reservoirs seem to have been originally shallow in capacity, it is not less true that a mechanical cause, without any mental stress or suggestion whatever, can induce similar phenomena in persons previously of normal nervous capacity. Perhaps in persons thus originally endowed, a dislocation of synapses, or some sluggishness of the ancillary processes of these systems, may become equivalent to defect of capacity. On the other hand, as rest, massage, and high feeding, which in hysteria are of little service, cure a large number of neurasthenic patients, even cases of traumatic origin, if the pathological condition consist in a solution of continuity, the feeding, peace and other curative means fill up the gaps.”†

* Cf. article, “ The Diagnosis of Neurasthenia ” (*Practitioner*, April, 1913, by author).

† Allbutt, *ib.*, p. 740.

Physical exhaustion produces, when temporary in its action, symptoms which give a faint picture of what is seen in Neurasthenia. The jaded mind, its inability to grasp details or to fix attention, and irritable weakness, are often the outcome of a day's work which has precluded by its urgency proper nourishment. The fatigue associated with such a day is only one, and less important factor, in the picture thus produced: and a good dinner, followed by rest for its digestion and absorption, works wonders.

This can be seen to apply to those patients who have been cured by the Weir Mitchell treatment, only the picture is magnified and the time of restoration prolonged. Improvement in each case would lead us to believe that cell-diffusion has returned to its normal rate—and the fatigue (out of proportion to what has been accomplished) would certainly seem to have been produced by the insufficient nourishment of the cells concerned.

It is a little difficult to sort out the factors in such cases as these: where only too often malnutrition is associated with overwork. It can hardly be expected that we should desire to be too precise in this, for to distinguish the two factors would often be impossible. Let us now see in what way fatigue might affect the body.

B.—*Fatigue.*

Fatigue is a paradoxical condition, and in this particular connection especially so. For it is one of the causative factors of Neurasthenia, and it is one of its chief symptoms. It plays the part of a pleasant companion at certain times, and of a dire enemy at others: it is both friend and foe. Likewise is it anomalous in its constitution, and often ephemeral in its existence.

It bears such an important part in this malady, that we are justified in spending some time in considering its nature.

In the human body, fatigue is the normal result of expenditure of energy, the expected conclusion to a course of bodily activity. Manual and mental work are capable of producing a tired condition, which is compatible with the standard of ratio between energy and expenditure. Conscious and unconscious efforts are continually in action during the tenure of human life, and work, in the sense of the physicist, is being performed to keep the human system healthy and to enable it to perform its functions. Not only the crude energies of consciousness, and the voluntary expenditure of energy call for vital strength, but the many small stimuli which must perforce be forthcoming to keep the automatic system adequate, have to be supplied by day and night, in the resting and active states.

Now let us suppose that fatigue is produced by all these means, and that the organism is capable of becoming exhausted either by conscious effort or by unconscious work. The system is unable to maintain energy continually throughout day and night, although it is able to perform voluntary work for half that time, and automatic action for the whole of the period. Therefore, if we expect voluntary work to be continuous, it is only logical to assume that the increased expenditure of energy must be drawn from the supply usually at the disposal of the unconscious system—in other words, the excess of work (over the normal) done voluntarily must be balanced by diminished labour of the unconscious. It would be no exaggera-

tion to say that this fanciful picture may be near the true explanation of the many involuntary abnormalities with which we meet in nervous exhaustion; for the conscious languor and fatigue is only a part (and a relatively unimportant part) of the disturbance. What is vital (and less amenable to treatment) is the automatic disturbance so consistently present in the neurasthenic: vaso-motor and visceral abnormalities; mental weakness and indecision; and the apparent inability of the great medullary centres to govern their respective realms—these are the dominating factors. The sympathetic system no longer maintains its proper relations with the somatic system: and runs riot when fatigue reduces the control normally exercised by the higher centres.

Unless, therefore, nervous energy is to be totally expended by such exertions, and a condition of nervous exhaustion produced, fatigue must never be allowed to persist. Rest banishes fatigue (when of short duration), and restores the normal tone to the various parts of the body.

Sir T. Clifford Allbutt divides fatigue into catabolic and atonic, and he considers that in Neurasthenia the catabolic fatigue is not so frequently (or not nearly so frequently) met with as the atonic. That many cases of Neurasthenia are produced by wrong metabolism cannot be disputed, but we might well add to them those derived from anabolic fatigue (*i.e.*, the fatigue due to deficient nutrition) and bracket them with those due to the fatigue produced by poisoning by the broken-down products of metabolism (catabolic fatigue).

Atonic fatigue shows us a picture of relaxation due to insufficient stimuli. The organ or organism relaxes

for want of the necessary support from the higher centres. These, we know, tire before their subordinates, and when the eagle eye of the master be withdrawn, they shirk work and give us the well-recognised atonies.

Is not this, then, what we meet with in the fatigue of nerve exhaustion? Consider for a moment how atonic any part of the body may well become under such circumstances. The special senses may be unable to perform their wonted tasks in a competent manner, due to the enervation of their muscles and ligaments (the atonic voice is a recognised symptom of Neurasthenia),* the viscera sag owing to ligamentous atony, while even mucous membranes show a diminished tone and a relaxation due possibly to a local vasodilatation.

We must remember that a constant stream of stimuli is necessary for the maintenance of the accustomed bodily "tone." This means expenditure of energy and requires a constant reserve of power to supply such energy. When such stimuli are not forthcoming, an atonic condition is developed. Now, excessive and lasting fatigue will produce such a condition, and for its cure the patient must conserve his energies so as once more to have a balance on the credit side, at a time when he has curtailed his expenditure. This is one explanation of the success of "rest-cures." When these fail it is probably because other etiological factors are present which have been overlooked and which have consequently been allowed to remain and continue their malign influence.

* See *Nervous Exhaustion* (Beard), p. 22.

TOXIC CAUSES.

The poisoning of the nervous system referred to in the previous section requires, however, a little closer study here. Catabolic fatigue, accompanied as it is by some poison elaborated within the body, is only one aspect of the toxic cause; poisons of extraneous origin equally demand our attention.

1. *Morphia and Cocaine*.—On the effects of drugs in general, difference of opinion may well exist. But so far as the common drugs, morphia and cocaine, are concerned, authorities are generally agreed that they are a real source of nervous exhaustion when habitually taken. The morphomaniac is always a thin, almost emaciated creature, whose nerves are rarely under proper control unless he is under the influence of the drug. The repeated and increasing dosage poisons the nerve centres and, so far as they are concerned, we have a condition which, if we may use the term, might be called *neurasthenoid*. One such case the present writer recalls as exhibiting the combination of pyorrhœa alveolaris of a marked and dangerous degree with a morpho-cocaine habit of some years' duration. The pyorrhœa being effectually removed, and the body cleaned of its toxins, recovery did not ensue until the drug habit had been neutralised—and it can hardly be expected that the system could be restored to health while such sedative drugs were being taken. For normal impulses were strangled at their birth in company with the abnormal stimuli for which the drug was taken, and thus the nerve cells received no encouragement to their restoration.

If we consider for a moment the action of these two

drugs we shall soon realise how their habitual absorption must affect the nervous system. Stockman in *Textbook of Pharmacology and Therapeutics*, speaking of the morphine habit, says:* "Once it [the habit] is established, any interruption of the daily dose produces a feeling of extreme nervous and bodily misery, watering of the eyes and nose, abdominal uneasiness and anorexia, all of which at once disappear on taking the drug. . . . Such people are lean and shrivelled, yellowish in colour, dyspeptic, constipated, irritable, somewhat sleepless and unreliable. They suffer from functional cardiac and nervous disorders, from amenorrhœa, impotence, albuminuria, and are more or less useless as working members of the community."

It will be seen, when we discuss the symptomatology of Neurasthenia, how closely this picture resembles in many points that so commonly seen in nervous exhaustion. And this is only to be expected, for this drug and its near neighbour cocaine produce, when taken for any length of time, similar nervous aberrations from the normal to those seen in Neurasthenia. In fact, it may be stated that morphia-taking can well be reckoned as a certain and fruitful source of nervous exhaustion, and consequently we are justified in regarding this drug as one of the toxic sources of this malady.

2. *Alcohol*.—Opinion is divided about the part played by alcohol in the production of Neurasthenia. Some authorities are of the opinion that it cannot be regarded as a contributory cause, while others consider that alcohol, when taken in large doses for a number of years, can and does in company with other causes help to

* *Textbook of Pharmacology and Therapeutics*, edited by W. Hale White (The Caxton Publishing Co.).

produce the status neurasthenicus. We are inclined to think that the prolonged indulgence in this drug does lower, and alter for the worse, the nervous potential so as to pave the way to Neurasthenia. It is certain that an alcoholic history does not improve the prognosis in these cases, and consequently we may safely assume that it cannot be regarded as an altogether negligible factor in the production of this disease. Whether we can maintain that it is a causative factor, is, at present, uncertain, in default of more certain evidence.

Let us glance briefly at the effects which alcohol produces upon the normal body, before attempting to judge what effect, if any, it may have upon the potential neurasthenic.

Several well-known symptoms result from acute alcoholic poisoning, and these can be studied in detail in any textbook on the subject—*e.g.*, Professor Glaister's *Medical Jurisprudence, Toxicology and Public Health*,* but we are concerned here mainly with the study of the effects which alcohol produces upon the body when taken over long periods. These are, as might be expected, very similar to those seen in acute alcoholic poisoning, with the addition that these vary according to the kind of alcohol imbibed and that they affect, more or less permanently, many of the organs and tissues of the body. Sir T. Lauder Brunton,† speaking of the immediate effects of alcohol says: "To the stimulant action succeeds the narcotic, although it is difficult to draw a line of demarcation between the two. The action of a narcotic is to lessen the closeness of the relationship

* Pp. 346-351, also pp. 505-506.

† *On Disorders of Assimilation, Digestion, etc.*, p. 92 (Macmillan, 1904).

between the organism and its environment, and the delicacy of its power of adjustment to external circumstances." Every drug has two actions, and alcohol exhibits these in the well-known features of exhilaration and coma. In those people who perpetually indulge in alcohol in large quantities, there undoubtedly is produced a disorganisation, which affects in some degree all parts of the body. The mental aspect becomes altered (note also the moral changes which are seen in some form in all drug-takers), and the various functions are in all cases sensibly modified. It is true that there is only too often no visible sign of such alteration in cases of short duration, but nevertheless, where alcohol has constantly been indulged in for years, the entire system has adapted itself to the periodical artificial stimulation, and has, to use a metaphor, laid its plans accordingly.

Alcohol is first and foremost a circulatory stimulant; secondly, a nerve-excitant; and lastly, in its reaction, a depressant. Before dealing with the association of alcohol and neurasthenia let us quote in full the conclusions which Lauder Brunton reaches, as to the action of alcohol. These will help us to decide whether any possible relationship exists between alcohol and neurasthenia. He sums up the action of alcohol as follows:

"When drunk, it increases the secretion and movements of the stomach and intestines, and thus in moderate quantity may aid digestion; but in some persons, beer and wine, even in moderation, instead of aiding may retard digestion: and when gastric catarrh is present may interfere with it most seriously, so that, in such cases, alcohol in every form should be carefully avoided.

"In acute diseases it seems to aid digestion rather than to interfere with it, and is, therefore, useful along with

food in acute diseases, such as fevers, in convalescence from acute diseases, and in chronic wasting diseases, such as consumption.

"It may also be taken in moderation—that is to say, in a quantity not exceeding at the utmost two ounces of absolute alcohol in twenty-four hours—either as a luxury by healthy people, or as a medicine by those whose digestion is below par on account of debility from various causes.

"Alcohol does most harm when taken on an empty stomach, and least when taken with food. Much exercise in the open-air lessens its injurious effect. Excess in alcohol diminishes the strength, both physical and moral, of the individual, and tends to shorten his life, to induce insanity, to lead him into poverty and crime, and the mischief he has done to himself he transmits to his children. Besides the privations and temptations to which the children of the drunkard are exposed, *they inherit a weakened body, a tendency to convulsions, to idiocy and to insanity, or at least an unsettled equilibrium, which renders them useless members of society, flighty, unsteady, and untrustworthy.*

"In addition, they inherit the craving for drink, which usually develops itself between the ages of fifteen and twenty-five."*

Bearing in mind these conclusions, how does the question affect the neurasthenic? In those people, to whom we have alluded as "potential neurasthenics," the nervous system as a whole, and certain parts of it particularly, are always in an unsettled condition, waiting, as it were, for any stimulus, for good or ill,

* *On Disorders of Assimilation, Digestion, etc.*, pp. 147-149 (Macmillan, 1904).

which may chance to come its way. Such a person who artificially stimulates, invites reaction; thus, while temporary improvement is the result, the final effect is unwholesome. For the drop into the quagmire of mental and bodily depression which takes place, once the stimulating effects have worn off, is of serious import to such persons.

It is probable that in individuals of nervous inheritance, alcohol may well play the part of a disturber of harmonious relations; disorganising as it does the normal supply of blood to the various parts of the body, and helping, as it has been shown to do, the circulation to the periphery at the expense of the blood-supply to the vital centres.

It is hardly conceivable that we can seriously regard alcohol as a causative factor in producing nervous exhaustion, apart from a predisposing soil. The custom of drinking alcohol is so widely distributed and so commonly met with that we are hardly justified in attributing to it more than a slight part in this connection. Its rôle is that of an assistant rather than an originator; and its power is greatest when the resistance of the organism to stimulation is least.

The neurasthenic, as well as the potential neurasthenic, is extremely sensitive to all influences, whether of mental origin (see the Chapter on Psycho-therapy), or of physical origin; whether from inside or extraneous sources. Such a constitution is more readily influenced by alcohol than the normal man: and it is therefore to be remembered, when endeavouring to locate the cause of Neurasthenia in any particular patient, that alcohol (especially when the original disposition is favourable) can exert an influence which is malign.

Further than this, we are not justified by evidence in proceeding. Alcohol is not, and probably is never, a sole agent in this malady, apart from the neuropathic causes; and can only be regarded as a contributory factor.

3. *Tobacco*.—We here meet a curious paradox—namely that, while some physicians prescribe tobacco as a preventative as well as a help to the neurasthenic,* others regard it as a definite contributory factor. The habit of smoking is so exceedingly common, that its influence, if any, in the production of this disease, must be extremely small. Possibly when indulged in to the extent of actual nicotine poisoning (when tachycardia, amblyopia, or other functional disorders are present), it may have a bearing, but then only in the presence of other more definite factors.

The vaso-depressant effect of tobacco has been well known for many years, but the constant habit of smoking appears to raise the tolerance to this drug, certainly in many people. Its action is mainly on the heart, and it first stimulates, and later paralyses those fibres of the vagus which regulate cardiac action.

Its stimulant action upon the circulation accounts partly for the wide use of this drug by brain-workers, and for the habit of smoking when trying to solve a knotty problem. On the other hand its secondary effect is the reverse, and leads to a lowered blood-pressure, and, if prolonged, to a condition of the heart known as “smoker’s heart.”

Many neurasthenic patients find out for themselves

* The late Dr. T. D. Savill was of the opinion that the “pipe of peace” had saved many an overworked medical man from Neurasthenia.

that their subjective sensations become worse after smoking; in fact, on more than one occasion, the writer has substantiated such statements by clinical evidence. One patient of his informed him that he felt "palpitation" of the heart after smoking one cigarette: although previously he had been a heavy smoker. The blood-pressure was taken before and after smoking, and a drop of ten degrees was noticed synchronously with the increase in the discomfort experienced by the patient.

It would seem that smoking is harmful to some neurasthenics, but there is no tangible proof that it is a factor in the production of the disease. It must be remembered that many of the heaviest smokers are men who do brain-work; and that some cases of Neurasthenia, in which the excessive use of tobacco might appear to be a contributory factor in the disease, are in reality due to the nerve-strain inseparable from excessive mental effort. Again, many neurasthenic patients are non-smokers, while a large number indulge in tobacco to a very limited extent; and others are only moderate smokers, so the part which tobacco can play in the production of Neurasthenia is probably so small as to be negligible.

| GENERAL AUTO-INTOXICATIONS.

In this section we have to consider the part played by toxic agents manufactured within the body, and how their noxious effects are produced. Of these, Influenza and Alimentary Toxæmia are by far the most frequent causes.

Influenza.

This has long been considered as the most fruitful of all the specific fevers in the production of Neurasthenia,

and it is a remarkable fact that a very large proportion of neurasthenic patients can give a history of an attack or attacks of this dread disease, often in a severe form. There can be little doubt, moreover, that the part played by Influenza in causing Neurasthenia is of a serious and grave nature: first, because of the frequency of the disease; secondly, because of the severity of the modern form; and thirdly, because of the undue susceptibility to this malady which many people exhibit.

It is not difficult to imagine how this nerve poison acts; or rather it is not a hard task to find analogous instances in kindred lesions. If we assume that the virus of Influenza possesses some peculiar properties by which it is enabled to attack the central and sympathetic nervous systems, we may liken this to the selective action exerted by other poisons—*e.g.*, the toxins of tetanus, lead-poisoning, and alcohol.

We must not overlook the co-existence of Influenza and Alimentary Toxæmia in the same patient; for it is conceivable that, in persons who are constantly subject to the former disease, the bodily resistance is so lowered by some autogenous toxin that it readily succumbs to this most prevalent infection.

The late Sir Francis Laking is credited with advising a patient, who was complaining of his frequent attacks of Influenza, to take one sulphur and guaiacum lozenge each night throughout the winter. Presumably this was intended as an intestinal disinfectant; in any case this sufferer is said to have become immune to the disease !

In studying the history of Influenza, we are struck by its extreme prevalence during the recent years in which Neurasthenia has become a world-wide malady. After

the severe epidemics of 1847-48,* the disease vanished until the pandemic of the eighties;† when it returned in a virulent and widespread form. It is singular that the important dates in the history of the two maladies should so closely correspond; and it may truthfully be said that the extreme prevalence of Influenza in recent years has been responsible for many cases of nervous exhaustion; and in confining our remarks to this correlation, we cannot be accused of drawing unlikely analogies.

" Post-Influenzal Debility " is a term frequently met with in these days; but, in many cases, " Post-Influenzal Neurasthenia " would be a more accurate appellation. Influenza appears to have some particularly deleterious action on the cells of the nervous system, and to have the power to exhaust them in a manner possessed by no one of the other specific infectious fevers. Why exactly this should be so, or in what manner this virus acts, we are not yet in a position to say. Furthermore, the recuperative power of the body is in many instances seriously impaired by Influenza, so that the recovery from Post-Influenzal Neurasthenia is apt to be slow.

It appears that Influenza is more frequent in our country than in America or upon the Continent, and this is doubtless a matter of climate; and being so much more prevalent in the British Isles than abroad, it is only reasonable to expect that Neurasthenia will be relatively more often caused by this disease here than it is elsewhere. Beard has nothing to say in his book with relation to Influenza and its part in the production

* It is interesting to note that it was about this time that G. Hersch drew attention to a nervous debility which seems to have been the precursor of Neurasthenia.

† Biernacki, *A Textbook of Medical Practice*, ed. by W. Bain, p. 888.

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of Neurasthenia. Neither does he consider that a moist climate (which conduces to Influenza) is in any way helpful to nerve exhaustion. But he says that a dry climate tends to produce Neurasthenia "by heightening the rapidity of the processes of waste and repair in the organism, so that we live faster than in a moist atmosphere." But, as already stated, Influenza was not the scourge in Beard's country and century that it now is; and although it existed it was by no means the important infectious disease which it has since become.

We must therefore allot a definite and high place to this ailment, when we consider the factors which produce Neurasthenia. It is so common a precursor that we can say most emphatically that this malady *may be regarded as an extremely frequent and potent source of Neurasthenia.*

Alimentary Toxæmia.

By this phrase is meant a condition of self-poisoning, originating in any part of the alimentary canal. It, of course, includes oral sepsis (if we use the term in its strict sense), but for conciseness of definition, we here confine our remarks to toxæmia arising from the gastrointestinal tract.

It will readily be admitted that we are dealing with an extremely debatable topic, and in attempting to discuss the bearing of this condition upon the production of Neurasthenia, we are possibly laying ourselves open to criticism from those whose views differ widely on this subject. There may be said to be two schools of thought with regard to this: the one which considers that a large proportion of cases of nerve exhaustion are caused by a process of physical auto-toxæmia; and the other whose view is that it is seldom, if ever, anything in the nature

of poisoning which produces Neurasthenia, but that it is essentially a psychic matter, produced by abnormal mentality. To the latter school any suggestion of the chemical origin of this malady is anathema—their views attributing it to purely mental processes.

As we are attempting an unbiased account of this disease, and endeavouring to collect all opinions on the causation of Neurasthenia, we must consider every factor. When we consider that numerous instances of disordered metabolism associated with nervous exhaustion are on record, in which the latter condition has disappeared *pari passu* with the successful treatment of the former, we might assume that intestinal toxæmia, sub-infection, and the bacterial ectotoxins produced by *B. botulinus*, *B. pyocyaneus* and other micro-organisms, are responsible for certain cases of nervous exhaustion.

The recent work of Lane, Adami and others, and their conclusions as to the importance of Intestinal Stasis on the general bodily and mental health, are of vital importance to a complete understanding of the bearing of this subject on Neurasthenia. We will state here, then, a few facts relating to Alimentary Toxæmia, so that we may arrive at a proper understanding of how it may act in producing nervous exhaustion.

Firstly, then, we may study Sir Arbuthnot Lane's views. This writer maintains that chronic intestinal stasis is produced by a variety of causes, among which we may make a brief reference to enteroptosis (with subsequent elongation of the colon), kinks (one occurring in the ileal region bears this author's name), mesenteric adhesions, and other obstructions to the free passage of the ileal effluent. From these varying causes, Lane describes seventeen results, among these

being, loss of fat, wasting, sub-normal temperature, mental abnormalities, rheumatic pains and aches, altered blood-pressure, prolapse of abdominal organs, and atrophy of the thyroid gland.

The intoxication, in other words, affects the whole system deleteriously, and Sir Arbuthnot Lane describes the altered conditions which supervene upon the radical treatment of the stasis. It will be noticed how closely these manifestations resemble the symptoms of Neurasthenia. Some writers would call this "secondary Neurasthenia"*—*i.e.*, a disease differing from "primary Neurasthenia" by the fact of its origin. Others again, make an arbitrary distinction between symptoms such as these arising from Alimentary Toxæmia and "true Neurasthenia." When we consider the intangibility of this symptomatology, and the multiplicity of the etiological factors of this disease, it seems unnecessary and unjustifiable to state that these are two different and distinct diseases. Rather are we more likely to be accurate if we give due consideration to the similarity between two such clinical pictures, and infer from this that poisoning originating in the bowel can produce symptoms which are indistinguishable from Neurasthenia.

Adami† criticises Lane's views on this subject, and differs from him in his conclusions as to the etiology and manifestations of this disease.

He sums up his criticisms of Lane's views as follows:

1. It is more rational to regard the evil effects of intestinal stasis as, in the main, a result of conditions favouring sub-infection and low forms of infection than as a result of chronic intoxication.

* Burr, *System of Medicine*, edited by Osler and McCrae (Hodder and Stoughton, 1910).

† "Chronic Intestinal Stasis," (*B.M.J.*, January 24, 1914).

2. The term "gastro-intestinal auto-intoxication" is pernicious and not to be employed by any self-respecting member of our profession, save for so limited a set of conditions that for ordinary purposes it may safely be wholly expunged from the medical vocabulary.

3. While the symptoms and diseases enumerated by Sir Arbuthnot Lane may follow intestinal stasis, at least a large proportion of them may originate independently of such stasis.

4. Before recommending the operation of short-circuiting it is necessary, therefore, to make the fullest studies, so as to discover, if possible, the nature of the organism responsible for the disturbance and its probable seat of entry.

5. A discovery of the cause of the symptoms is calculated to suggest the appropriate means of treatment by means other than short-circuiting. Only when these have been tried and found wanting is removal or short-circuiting of the colon justifiable.

Adami, as will be seen from his summary, maintains that the manifestations which Lane attributes to Chronic Intestinal Stasis can be produced by other causes; and differs again from Lane, in regarding the primary causation as one of the sub-infection and not intoxication.

Savill believed that many cases of Neurasthenia were attributable to self-poisoning from the alimentary tract; but Allbutt disagrees, and regards such views as depending upon faulty diagnosis. Risien Russell,* in speaking of the causation of Neurasthenia, says: "Nevertheless, careful search must be made for any possible cause, such as some remote source of septic absorption from the pelvic organs of the female, and chronic appendicitis, pyorrhœa of the gums, etc., chronic constipation, colitis, and dyspepsia must be corrected, as must all such prejudicial influence as eye-strain and the like." This is, of course, tantamount to admitting that septic absorption can produce Neuras-

* *Transactions of the Medical Society of London*, p. 45, 1915.

thenia. Again, the same author says:* "Any debilitating influence may cause Neurasthenia, so that chronic diseases may do so; but a toxic agent may be in operation in these cases, as distinct from the debilitating effect of the organic malady, and there is proof that some poisons do act in this way."

It will be seen, therefore, from the views just quoted that opposite opinions are held as to the part toxins in general, and substances generated by the intestinal tract (which may be assumed to have a deleterious effect upon the nervous system) in particular, play in the production of Neurasthenia. With the material at hand at the present time, we can hardly say more than there is every evidence to justify us in assuming that such influences (whether auto-intoxication, or sub-infection) are capable of damaging the nervous system, and of producing a clinical picture which is indistinguishable from Neurasthenia.†

Chronic Diseases.

We are all familiar with the degenerations consequent upon chronic suppuration, and with the microscopic pathology obtaining therein. Such a condition, consisting in the substitution of a waxy material for the

* *A Textbook of Medical Practice*, edited by William Bain, p. 725, (Longman and Co., 1904).

† What has been said about the influence of toxins generated in the intestine applies equally to those emanating from other parts of the alimentary tract, in particular to *pyorrhœa alveolaris*. This condition is exceedingly common, and is discovered to be present in many patients presenting symptoms of nervous exhaustion. A routine examination will frequently disclose pockets of septic material around the margins of the teeth, loosening of the teeth, with destruction of the periodontal membrane; and it is often possible to squeeze pus from the pockets. In these cases, vigorous oral hygiene should be instituted without delay.

normal structure of the part concerned, has been known by the names of amyloid disease, lardaceous infiltration, etc.

In a similar way, we may fairly assume, do chronic diseases, particularly those associated with marked bodily changes, bring about Neurasthenia. For to say that the nervous exhaustion which supervenes upon prolonged illness of this nature is indefinite, and not worthy of the name of Neurasthenia, is untrue. There are doubtless many cases in which this name has been utilised to cover insanity and comfort relatives, or to save offending the patient by correctly diagnosing hysteria; or as a safe refuge for the practitioner. But it cannot be emphasised too strongly, and particularly so in these cases, that Neurasthenia should be diagnosed only in the presence of the typical signs and symptoms which render the malady characteristic. To speak of a condition as Neurasthenia, whenever symptoms are related which have no corresponding physical signs, or upon any occasion on which the practitioner considers the patient neurotic, is utterly misleading and incorrect. When the term is only used to designate a definite condition, made up of well-recognised signs and symptoms, then shall we be able to diagnose correctly many cases which at present are relegated to the dustbin of Neurasthenia. The medical profession should scruple to use the word loosely, when making a diagnosis; and should desist from misleading their patients (however unintentionally) by such indiscriminate terminology.

How many cases can every medical man recall in which the onset of Neurasthenia in the course of a prolonged illness has been marked, not by exhaustion only, as some would seem to infer, but by many manifestations distinctive of neurasthenia !

Carcinomata, osteoarthritis, Addison's disease, exophthalmic goitre and diabetes are among the chronic diseases upon which Neurasthenia may supervene; and, it is needless to say, its onset is of necessity gradual. Metabolic disorders, gout, lithæmia, and phosphaturia, while hardly in the same category as these just mentioned, are frequently associated with Neurasthenia. Those unfortunate sufferers prone to "disordered liver," are also liable to its development; while of necessity the constipated subject puts himself in a position in which he may favourably assist in developing this malady *vía* toxæmia or sub-infection.

Atonies and Displacements.

In a large number of patients suffering from Neurasthenia, examination will reveal atonies of the muscles, and displacements of the viscera. It is by no means always that the voluntary musculature exhibits loss of tone; as it is quite possible to possess the biceps of a blacksmith and an exhausted cerebrum or spinal cord. But the atony is most frequently associated with the viscera, and exists, in many instances, in company with a prolapsed stomach, bowel, or kidney.

The most marked feature of this condition, and one which has given rise to much discussion, is whether this atony is cause or effect. It would seem probable that it is the direct result of the interference with the nervous stimuli whose constant innervation in normal health produces tone; but many observers maintain that this generalised atony of the involuntary musculature is the primary lesion, and produces nervous exhaustion by its deleterious effect upon assimilation, and its constant and aggravating "drag" upon the ligaments.

In support of the former view, the present writer has on many occasions drawn attention to the fact that Neurasthenia exhibits many abnormalities, whose production seems to be dependent upon derangement of the sympathetic nervous system,* and, if this view be accepted, then Neurasthenia can be produced by this cause alone, and atonies and displacements would be the expected result. On the other hand, if some error of diet (imperfect mastication and hurried deglutition over a long period, associated with unsuitable food and irregular meal-times) is known to have been in operation for many months or years, then we may well assume that the constant overloading of the gastro-intestinal tract could result in an atonic condition of the stomach, which in turn produces gastroptosis and gastrectasis.

Whichever view we adopt, and possibly both are true for different cases, the result is the same. For we find that, whether cause or effect, a dilated or dropped stomach will in many neurasthenic patients be found to be in existence. And what is true of the stomach is also true of the other organs. The intestines are liable to be prolapsed, and, apart from the "bands" and

* In another place (Chapter IX, p. 156) attention is drawn to the pupil phenomena, originally noted some time ago by the author as being constantly observed in Neurasthenia. This corresponds closely with a sluggish or diminished action of this important system—in fact, this is the only explanation which will in any way help us to understand such symptoms.

The many vaso-motor abnormalities seen in this malady likewise seem to be dependent upon the same cause (compare the description of Morbid Blushing in Chapter IX.); and, furthermore, we must remember that the sympathetic system is mainly responsible for the innervation of the viscera, and for the involuntary movements of the stomach and intestines. We can therefore more easily understand the indigestion and constipation which are so constant a feature of nervous exhaustion, if we appreciate the probability of diminished sympathetic conductivity.

adhesive obstructions upon which Lane lays such stress, are consequently of lowered efficiency and incapable of performing their peristaltic functions in a satisfactory manner. That this factor is of importance is demonstrated by the immense improvement in the nervous phenomena when some remedy, such as adequate support or efficient massage, is instituted. If a patient suffering from the drag and discomfort of prolapsed or dilated viscera is allowed to maintain the upright position without adequate support, the wear and tear of these displaced organs can quite well be assumed to be extremely harmful and fatiguing. Rather should the horizontal position be insisted upon (where support is given to the viscera by the posterior abdominal wall) until efficient artificial support be provided; and such support should be persevered with until the natural tone has been restored.

Therefore, whether primary or secondary in the production of Neurasthenia, atonies and displacements play an important rôle in the etiology of this malady, and as such they must receive the attention they deserve.

Before leaving this subject, mention must be made of another instance of loss of tone—namely, *splanchnic atony*. This bears so largely upon the subject under discussion that a brief reference to it at this place seems suitable.

Some American authors regard the vessels of this great area as responsible for all the symptoms of Neurasthenia, and they attribute the many vaso-motor abnormalities seen in this malady as due to a flooding of the splanchnic area with blood, to the detriment of the great vital centres. Following our argument of sympathetic disorganisation to its logical conclusion, we are forced to

assume that this system, which exerts so large a control over the splanchnic bloodvessels, would, when at fault, of necessity produce splanchnic atony.

Now, by this we mean that this great "backwater" loses tone (in fact generalised splanchnic vaso-dilatation is produced), which results in a lowering of the systemic blood-pressure, and the production of the train of symptoms which we may assume to be dependent upon a faulty blood-supply to the central nervous system. Many neurasthenic patients complain of an "emptiness" in the head, which they variously describe as a "loss of consciousness," "a blankness," "a dissociation" or a "black curtain dividing *themselves* from their body." In one such patient whom the present writer recently examined, this condition of splanchnic atony was extremely characteristic, and a still more interesting point—the unfortunate sufferer described the symptoms in detail without understanding their import. Thus, she said the blankness made her unconscious of her surroundings and even of her personality; that this came on worse when she stood up; or after meals; and was relieved by raising her legs above her head or by pressure on the abdomen. Now the blood-pressure in this case was only 108 mm. Hg, the pulse rapid (about 100), and the temperature markedly subnormal.

This patient—the greater part of whose blood was gravitating to the splanchnics, and leaving the cerebral circulation in a deficient condition—was temporarily relieved by raising the legs when lying flat—or, in other words by compression of the abdominal veins and by invoking the aid of gravity. These symptoms cleared up on the exhibition of extract of pituitary gland, and by the use of firm compression of the abdomen by a

strong spring belt. It may be mentioned in passing that this illness had supervened upon three confinements in close succession and influenza as an additional cause.

Such a condition may frequently result from any of the causes enumerated in this and the preceding chapter, and the direct result in such cases is a disorganisation of the vaso-motor system. This is shown by marked circulatory disturbances, which may or may not be complicated by physical symptoms of varying degrees, or may simply be manifested by mental lassitude and abnormalities. But it is essentially a secondary cause, and cannot be regarded as an initial factor; it is produced by some morbid process and is, so to speak, but an early result of the primary cause.

From researches conducted upon the cerebral circulation, Leonard Hill concludes that gravity plays an important part in the bodily circulation.* After discussing experiments on the circulation of the brain he summarises as follows:†

1. That the force of gravity must be regarded as a cardinal factor in dealing with the circulation of the blood.
2. That the important duty of compensating for the simple hydrostatic effects of gravity in changes of position must be ascribed to the splanchnic vaso-motor mechanism.
3. That the effects of changing the position afford a most delicate test of the condition of the vaso-motor mechanism.
4. That the amount of compensation depends largely on individual differences.
5. That the compensation is far more complete in upright animals, such as the monkey. . . .
11. That the horizontal and feet-up positions at once abolish syncope induced by the feet-down posture, by causing the force of gravity to act in the same sense on the heart, and thus the cerebral circulation is renewed.

* *The Physiology and Pathology of the Cerebral Circulation*, by Leonard Hill (Churchill, 1896).

† A few of his conclusions only are quoted.

12. That firmly bandaging the abdomen has the same effect (while the heart remains normal), and so long as the mechanical pressure is applied to the abdominal veins, the pressure cannot fall.

I have quoted these conclusions of Hill, as their bearing upon this question is evident. As a practical physiologist he has demonstrated the relation of normal cerebral circulation to splanchnic tone, and has shown that a full condition of the abdominal veins is associated with a low systemic blood-pressure and cerebral anæmia.

The analogy between his experimental results and the conditions obtaining in Neurasthenia are too obvious to need further comment; but we may draw attention in passing to the beneficial effects of efficient abdominal support, and its results in counteracting the hypopiesia and other vaso-motor abnormalities so common in this malady.

To sum up, then, we might say that displacements and atonies produce, apart from other (*e.g.*, chemical, auto-toxic, etc.) factors, undue and unnatural stimuli which result in abnormal fatigue. Many will dispute the proposition that such conditions are causative factors in the production of Neurasthenia, and will affirm (if they recognise their common occurrence at all) that they are the result of independent conditions, and occur as co-existing lesions in the subjects of nervous asthenia. While we are obviously at present not in a position to prove their actual relation to this malady, their frequent—almost constant—presence in Neurasthenia might fairly impress upon us their dependence, either as cause or effect, upon this disease.

A parallel lesion—namely, eye-strain—is admitted to be a common factor in the production of Neurasthenia; and surely both this and the former condition may

produce this disorder in a kindred manner. For eye-strain acts by constant irritation, and overaction of certain nerve-centres—both central and sympathetic—and so does a displaced viscus.

Such lesions must not be regarded as the only, or even a certain, cause, when discovered on examination. In many patients these may be but secondary to some factor which has so lowered vitality as to produce fatigue from work, which, in the healthy state, would be totally incapable of fatiguing the system; and we must therefore always look for a predisposing or co-existent reason. It is true that such a reason may not be discoverable, but cure will not be consistently effected or even deserved by the physician, unless any and every etiological factor be borne in mind.

CHAPTER III

THE MENTAL ASPECTS OF NEURASTHENIA

PART I

MENTAL CAUSES.

IN this section we shall endeavour to lay before the reader the more important among the mental antecedents of Neurasthenia. We shall have, of course, to travel for awhile outside the boundaries of physiology, and invade the allied realm of psychology. This is inevitable, but we believe that some understanding of the psychical side of Neurasthenia is necessary before the doctor or the patient can understand the nature of the disorder.

It has seemed, therefore, a matter of importance that the psychology of Neurasthenia should receive a full discussion in this work; not only from the standpoint of symptomatology or treatment, but from the equally vital standpoint of causation. If any serious attempt be made to analyse the factors which produce the disease under discussion, we should not rest content with attributing the disease to "modern conditions of existence," but should probe deeper into the details and endeavour to ascertain what psychological as well as physiological processes are contributory causes of the malady.

To do this thoroughly necessitates the discussion of

points which are not usually discussed in the textbooks which bear on this subject. If we deal at some length with the elementary feelings of man, with the primeval passions, and with the part these play in producing Neurasthenia, we do so in the earnest hope of contributing some little assistance towards the elucidation of the etiology of Neurasthenia.

PSYCHOLOGICAL CONSIDERATIONS

The task of the doctor, we maintain, then, in dealing with neurasthenic patients will be the easier if he is able to bring to it some knowledge of practical psychology. For that task is, as always, to cure the patient of his disease—that is, to help to restore him to perfect health, and not merely to get rid of one diseased condition by setting loose another. It is possible to cure a disease, and yet kill the patient, to banish Neurasthenia by substituting gout, or delusions, say, of the Christian Science order. To avoid this last a little knowledge at least of psychology is desirable if not, indeed, necessary.

To acquire and apply this knowledge is easier now than it would have been when John Locke lived and wrote. For psychology is now an assured science, established by introspection, experimentation and comparison. Not that its work is done, any more than the work of physiology is done, but that it has proved its right to be numbered among the sciences whose common presupposition is that their subject-matter can be reduced to order and formulated, and its changes foreseen and accurately dealt with. For example, Dr. Carpenter (speaking, indeed, of habit) says: "The study of psychology has evolved no more certain result than that there

are uniformities of mental action which are so entirely conformable to those of bodily action as to indicate their intimate relation to "a mechanism of thought and feeling" acting under the like conditions with that of sense and motion."* So Lotze in a sort of apology for his attempt to mediate between the older religious view of things and the later scientific view says that "it is in such mediation alone that the true source of the life of science is to be found; not indeed in admitting now a fragment of the one view and now a fragment of the other but in showing how† *absolutely universal is the extent* and at the same time how *completely subordinate the significance of the mission which mechanism has to fulfil in the structure of the world.*‡ Even Henri Bergson, while accentuating the supremacy of Life as the indeterminate factor in all experience, can yet say that "intellect and matter have progressively adapted themselves one to the other in order to attain at last a common form. *This adaptation has, moreover, been brought about quite naturally, because it is the same inversion of the same movement which creates at once the intellectuality of mind and the materiality of things.*"§ And Mr. Bernard Bosanquet is still more explicit. "However little," he says, "a man to-day may believe in materialistic determinism, he will be slow to deny that the bodily arrangements and mechanisms are at least the basis of the working of the soul. If we look at the matter rightly, this gives the organised consciousness an enormously greater significance and importance than if we held it to be, so to speak, a structureless intellectual protoplasm." And what he means by an organised consciousness he tells

* *Mental Physiology*, 1874, p. 344.

† Italics Lotze's.

‡ *Microcosmus*, 1885, i., xvi.

§ *Creative Evolution*, 1911, p. 217.

us when he says that "every particular finite mind has received some filling before it is aware of itself; and it could not be aware of itself if it had not."* Benedetto Croce in his lively way says that "the individual, even if he can be conceived as free in respect to his external environment, would be always subject to the law of his own nature. But the law of his own nature is not a contingent thing, but the law itself of the Spirit, or, precisely, freedom, and it is quite clear that freedom is not free not to be free." He had said just before that "virtue is a mere product, like vitriol."†

There is no need to labour the point further. The processes of the mind are under law, are orderly, and therefore capable of provision in the same sense, no more and no less, as the processes of Nature are. The mind as a living being "is capable of responding and reacting to a world of surroundings, and, by accepting correction from it, of adjusting itself to that world's requirements,"‡ and it is part of the business of the physician to apply the needed correction. But to do this effectually he must know something of the laws governing the machine which he is overhauling, or at least as much of those laws as is necessary for his purpose. And the best school for learning these laws in is the school of experience—experience being defined as "the process of becoming expert by experiment." It is necessary to insist on this rudimentary truth in days when the theories learned in the lecture-room are apt to be held fit to make men able as well as learned, and when too exaggerated emphasis is laid on the importance of the

* *The Principle of Individuality and Value*, 1912, p. 158.

† *Philosophy of the Practical*, 1913, p. 185.

‡ B. Bosanquet, *The Value and Destiny of the Individual*, 1913

so-called "experimental psychology." There will be always something in the human subject which no machine used in the psychologist's laboratory will reveal. The really fruitful experiments are those made by the wise physician on the patients under his care. We learn to walk by walking, to write by writing, to love by loving, and so we learn to cure patients by curing them, and this remains true even if success is not invariable, for every failure opens the door to better luck next time.

A TENTATIVE THESIS.

Now, the thesis we wish to offer to any physician who is called on to study the psychology of human beings, with the view of getting rid of an abnormality such as Neurasthenia, is that *all pathological mental processes originate in a repression of the powers of the Self*. To make clear the implications of this proposition is the purpose of this present chapter.

We must begin by making clear to ourselves what we mean by the term Self, for like all terms, and especially all terms used in psychology, it becomes loose and vague when transferred from the laboratory to the market-place. Indeed, any man would be puzzled if suddenly asked to say what he understood as the precise content of his Self. He would say, for example, if he had in a moment of passion struck his friend, or if he got drunk, or been guilty of some meanness, that he was not himself when he did it. And at any time he would be ready to admit that his true Self was more latent than patent. So too a magistrate might say to a man he sentences to imprisonment, "As a man I sympathise with you, but as a judge I condemn you," where he distinctly sets out himself under two aspects of the Self. In the same way

we all, when we compare our present Self with the Self of twenty years ago or of boyhood, say that though from one point of view it is the same Self, yet the changes wrought in it by experience have so greatly modified it that it is no longer the same Self, but a Self richer, more capable, and with innumerable new relations to the not-Self. In short, we discover that in a world of change the Self is also a changing thing, that it is continually taking in new and excreting old material, and that it never continues in one stay.

The Self, then, appears to be a very complex object, and we need a definition which shall exclude nothing that we ordinarily include in our conception of it. That given by William James will serve our purpose as well as any other. "In its widest possible sense," he says, "A man's Self is the sum total of all that he *can* call his, not only his body and his psychic powers, but his clothes and his house, his wife and children, his ancestors and friends, his reputation and works, his lands and horses, and yacht and bank-account. All these things give him the same emotions."*

The psychological value of this material Self may be seen in the landed proprietor, the typical millionaire of our novels and theatres, and is well symbolised by the walls, hedges and fences with which the owner of land, or garden, or park, sets out what he evidently regards as the boundaries of his material Self. It would, of course, be unfair to say that this Self was alone responsible for the somewhat arrogant and haughty air which used to be thought characteristic of the old nobility. But it certainly was a not negligible factor in the bearing of a gentleman, as much so as was cunning in the miser,

* *Principles of Psychology*, 1890, i. 291.

or as the disapprobation felt by an incumbent for the local dissenting preacher. That is why the possessor of this material Self regards a trespass on his estate as a personal affront, for that is just what it is to him.

But, again, preoccupation with this limited Self brings with it the perils which are attendant on all compression of force. For a human being is a running stream of Life, and Life is an expansive force which seeks and finds an outlet, or else revenges itself by disaster. Human nature is too big a thing that it can be contained safely behind the prison walls of any material Self. That is the formal cause of the Neurasthenia which is found within the ranks of the more or less well-to-do. Others are too busy to be bothered with the maintenance of any psychical *status quo*. Work is their daily portion, and if they did but know it, their work (when not too exacting) is their salvation. But the person in affluent circumstances is apt to settle on his lees, to stagnate and to try to content himself with such enjoyment as his material Self can provide. The result is that offended Nature resents this illegitimate curtailment of her powers, and inflicts on the offender a punishment of which Neurasthenia may be the least portion. Once more we suggest that Neurasthenia on this side is due to an unlawful repression of the powers of the whole Self; or, put in another way, is the outcome of a repression of those factors which result in "interest."*

* In this sense the word "interest" is practically synonymous with *Horme*," as used by Jung.

[DEFINITION OF THE SELF

Probably most men, if asked what they mean by the Self, would at once say that the bodily, material or social Self which we have just discussed plays a very small part in their conception of Self. They would say that by their Self they mean something within which has a relative permanence, which is the seat of consciousness, which thinks, feels and wills, and both traffics with the world of Nature and seeks to impose its own purposes also upon that world. And they would say further, that they find this Self to be roughly what is ordinarily called the Soul. If challenged to show that there is good reason for supposing a substantial thing like the Soul as so conceived to have any valid claim to existence, they would probably give the famous reply: "I am not arguing, I am telling you." They would maintain that the existence of a substance called the Soul is a datum of consciousness, that it is a necessary *a priori* supposition without which there can be no consciousness, and certainly no self-consciousness. They would also plead that a man's inner life is as much a changing thing as his outer, and, as what changes must have a principle of identity within it, therefore the ever-running stream of Thought requires a something in which it runs (just as a river can only run in its bed); and that, therefore, the common-sense view which calls this abiding something the Soul is probably worth more than the sceptical guesses of philosophers, whose business it is to be sceptics and to question all things. Certainly it is a decisive fact of experience that "compels us in the explanation of mental life to put in the place of matter an immaterial form of being as the subject of

phenomena, that *Unity of Consciousness* without which the sum total of our internal states could not even become the object of our self-observation.”*

This is not the place to embark on the discussion of the validity or otherwise of the Concept of the Soul as a substantive something which is the ground of consciousness. It is enough to say that this is the common-sense view of most people, of the great majority of people who call in the physician, and that “so universal a prejudice never can arise without strong grounds contained in the nature of the thing.”† If belief in the Soul be a prejudice, it is a prejudice necessary for practical life and its works. For our present purpose, therefore, we shall take it as a working hypothesis.

It is just here, however, where the physician's difficulties will begin. He accepts the ordinary view that he is dealing with a being whose normal state of health is to be found in a robust and healthy activity of his functions, such as memory, thought, emotion, will, and imagination, all being functions which bind together the activities of the Ego. Instead of this, he encounters a pathological condition, where there appears to be no one to give orders, or no obedience to the orders given. The harmony between Mind and Body, between the Direction and the Director, has vanished, leaving an autonomy of the lower, at the expense of the united whole. From the mental point of view, we may conceive that such physical abnormalities as we have referred

* H. Lotze, *Microcosmus*, i. 152; Lotze in his *Metaphysik*, pars. 243-5, is careful to show that when he speaks of the Soul as a substance he does not mean a corporeal substance.

† Lotze, *ubi supra*, i. 144. Those who may desire to look at the metaphysical arguments against this view may refer to W. James, *Principles of Psychology*, i. 301 ff.

to under the name of "disorders of the vegetative nervous system" could well come into being when such an inco-ordination as this exists.

MODERN PSYCHO-PATHOLOGY.

Now this is exactly where modern psycho-pathology, guided by the able and bold hand of Professor Freud, steps in. The contention of these observers is that the instinctive forces of the patient's nature have left the rails of normal development, and that the clashing and clangings of the resulting conflict have produced a state of exhaustion—have necessitated the expenditure of a large amount of psychic energy—and left the patient crippled in his struggle for existence.

We have already stated, in a former chapter, that the views of this school tend almost exclusively to the belief in the sexual origin of Neurasthenia and kindred ailments. It is true that the physical explanations of why Neurasthenia occurs are not satisfying; it is equally difficult to believe that every case of Neurasthenia is the result of auto-eroticism.* But the question to be answered is: Provided we admit that mental processes, *per se*, can produce physical exhaustion (and I think we are justified in this assumption), why must we limit these processes to jarring of only one part of man's mind? The answer is, because sexual processes, in their development, undergo repression to a greater degree than any other mental process.

* I am aware that I shall be told that I am confusing nomenclature, and that by "neurasthenia" this school refers to the type of nervous exhaustion appearing in adolescence. But I cannot agree that this is the meaning of the term in current use, neither does it seem to me that by limiting its meanings, and dividing these cases into "neurasthenia" and "chronic nervous exhaustion" we are helping the study of the condition.

I submit, however, that if we enlarge this conception and admit other conflicts into the list of causative factors on the mental side, we shall be no more rash than the advocates of the sexual theory were when they limited arbitrarily the mental causes to the sexual.

As an addition to the mental trouble caused by suppressed sexuality, why should not other emotions have an equal power to damage man's healthy equilibrium? We know by introspective psychology the immediate effects of such emotions as Anger, Jealousy, and Envy. These can and do play an important part in the *conscious* disturbances of early life; what part do they play, if any, in the sub-conscious?

Now, sub-conscious* ideas are what we are in search of when we ransack our memory for a lost name, a line of poetry, the precise terms used when we parted from a friend, or for a bar of music. Everybody is aware of the difficulty felt from time to time in recalling some item of knowledge which he knows is stowed away among his spiritual treasures in the mysterious depths of memory, and of the apparently capricious way in which the memory-image starts up when the quest has been given up in despair. But Science admits nothing capricious within its jurisdiction, and seeks, therefore, for the mode of action by which the mind is now helpless now able to recall its sub-conscious ideas. And it finds the explanation it wants in the theory of "presentational dispositions," where *dispositions* is the name given to the complex system in which our buried ideas are linked together as in an intricate network. The way in which the machinery of the sub-conscious works is supposed to be like a moving stairway on which men

* The "foreconscious" of Freud.

are jostling one another in an attempt to be first at the landing stage. That one man should succeed depends on his ability to push others on one side. In the same way those memory-ideas which are most robust and most lively, whether through association, repetition or initial vividness, are those which succeed in coming to the top. But they do this by removing the inhibition exercised by other ideas, and no doubt all the labour spent in recovering the desired idea is not really thrown away, but is the necessary preparation for the setting free the idea which then seems, but only seems, to spring up of its own accord.

PSYCHO-PATHOLOGY AND NEURASTHENIA.

This law of working of the mind has a close bearing on the psychology of Neurasthenia. For there are memory-images which are healthy and others which are unhealthy—taking “ healthy ” to connote “ endowed with more vigorous life.” The mind, therefore, will be in a healthy condition when the ideas which give the feeling of a satisfied state come to the surface most persistently and most easily; it will be in an unhealthy condition when these ideas are inhibited and replaced by others which fail to give satisfaction, or are even repellent or terrifying. In this case the mind feels that its powers are repressed, that it is a captive; and it longs for freedom. While it is struggling to throw off its chains its vitality as a whole is lowered and a condition such as Neurasthenia sets in.

The importance of a healthy sub-consciousness is readily seen when we think of the phenomena of delusions, of alternating or multiple personalities, and of so-called possession by alien spirits. These all testify to

a disorderly condition of the psychical dispositions, by which the unity of the whole is broken up and Reason no longer umpire sits. The task of the physician here consists in tracing to its source the process which has led to this topsy-turvy state of the mind. In order to do this he may employ patient, skilled and sympathetic observation, and his success here will depend on the measure in which he can carry on his observations without the knowledge of his patient. Or he may find that he can best win his way by approaching the disease from the physical side, prescribing diet, massage, exercise and the appropriate drugs. Or, as is often the case, he may decide that a complete change of surroundings offers the best hope of a cure (especially the removal of all relatives), whereby new psychical dispositions of a pleasing character are brought in to expel the old. Or, once more, he may in many cases use with advantage the method of psycho-analysis as practised so successfully by the Freudian school, or what would be even better where the nature of the evil can be brought into consciousness, he may induce the patient to unburden his mind fully and so himself lay bare the hidden wound. It is probable that the number of cases where the patient is concealing his canker is greater than that where it is concealed from himself by being of the nature of a "strangled emotion."

* * * *

To return, for a few moments, to the wider conception of the mental etiology of Neurasthenia, on what grounds can we put forward the theory that emotions other than sexual produce this disorder? It is not necessary to do more than point to the place of the imagination in

relation to health or ill-health. In both, imagination and belief play a large part, and our beliefs are largely constructed by the liveliness of the ideational process called imagination. "All belief involves objective control of subjective activity,"* but if that control be overborne by the vehemence of our subjective activity, we are liable to be led into action which society will brand as due to insanity. But, short of this, the neurasthenic condition may result from disorderly imagination or, again, may occasion it. If I let my mind dwell on the processes of my physical activities, such as digestion, or the action of heart or lungs, it is quite likely that I shall end by superinducing a morbid condition which may begin as Neurasthenia and end in a still more grave disease. Had Christian Science limited itself to insisting on the power of the imagination to affect for good or evil our organic processes it would not have laid itself open to many of the criticisms justly levelled at it. It is frequently said that a pain may be induced in the little finger by fixing attention on it, or that warts may be charmed away by a due mental process, and in general the attitude of the mind—that is, of the imagination—is an important factor in maintaining, restoring, or impairing the health of the body. For though it is true that "the attitude of belief and disbelief is prior to the free play of imagination," the converse is also true. If we are able somehow to keep before our minds an image of ourselves in good health, a belief in it may follow, and even health itself may follow the belief, for he who believes the end will probably believe the means.

* Stout, *Manual of Psychology*, p. 544.

IMAGINATION AND DISEASE.

If, however, our minds become filled with morbid imaginations, with Fears, Anger, Resentment, and Jealousy, it is unreasonable to expect an equable behaviour of mind or body. Fear has been defined as "an instinct which, when excited by one of its appropriate stimuli, inclines us to experience a nervous shock extending from a slight thrill up to convulsions and insensibility."* What happens to the individual mind when emotions of a marked violence are constantly experienced? Is it reasonable to affirm that they would tend to exhaust the individual's energy? And is the change limited to the mind, or does it overflow into the body? Recent work in physiology has made it abundantly clear that emotions, such as Fear, produce very marked physical correlates, the object of which is to prepare the individual for subsequent action. Examples of this combined mental and bodily action were very frequent in soldiers whose duty forced them to face the dangers and duress of the front line, but in these cases the exigencies of the herd-instinct compelled them to hold in check the bodily action which is the result of the action of Fear in the mind.

Again, Anger aroused demands an outlet; and the outlet in turn necessitates the expenditure of physical energy. Here Cannon's work shows us that the psychical overflows into the physical,† producing bodily changes via the endocrinic system. A careful perusal of this work makes the phenomena which we are now

* Graham Wallas, *The Great Society*, 1914, p. 93. For a fuller account of the psycho-physiological mechanism see *The Organs of Internal Secretion*, second edition, chap. xi.

† The effects of pain, anger, rage, etc.

engaged in studying of even greater interest. It gives us a glimmer into some of the abnormalities of this complaint; it suggests to us that the constant presence of turbulent emotions may upset the vaso-motor system by undue sympathetic stimulation; it even leads us to hazard that some similar over-stimulation with resulting relaxation might account for the constant presence of, for example, the atonic viscus in Neurasthenia. We are only on the threshold of knowledge in these matters; there is many a link still to be completed in the chain which leads from original cause to ultimate result. In other words, taking for a few moments the Freudian doctrine as accurate, and assuming that instinctive aberration is the commencement of the disorder, what are the steps by which the individual ultimately reaches the stage in which the body is loathe to work smoothly and the mind is a mass of indecision and doubt? Some such mediate causes as we have referred to above may be partly responsible for the clinical picture of Neurasthenia, where the origin of the disordered functioning has been the mental conflict caused by sexual factors. The suggestion which we have put forward is that other mental factors may possess the power to disturb mental harmony; and that a conflict may arise in matters other than sexual.

Many writers have enlarged, modified, and otherwise altered the views originally put forward by Freud. Some have suggested higher strivings in the mind as the cause;* others, again, that the strain of ambition may take its toll of man's energy.† The perusal of some of these works leaves the impression that factors other than

* Cf. Dr. C. G. Jung's writings (see Bibliography).

† Adler, *The Neurotic Constitution*.

sexual have still to be reckoned with in the production of Neurasthenia. At this place, then, we may say that on the psychogenic aspect of this disorder, the wise physician will probe for symptoms whether of Fear, Anger, Sexuality, Envy, or Jealousy, whenever he has reason to believe that Neurasthenia has had any emotional stress as a predisposing cause, and he will then address himself, now in one way, now in another, to the removal or control of that egoistic attitude towards the world of which the passions are born.

Looked at from the widest angle, therefore, we can sum up our contentions by saying—

1. The psychical and the physical interact, and the normal man possesses the *mens sana in corpore sano*.

2. Any disturbance of the psychical dispositions may develop along unsuspected lines which lead to physical or psychical ill-health or both.

3. The physician, therefore, can hardly afford to ignore the history of the mental life of the neurasthenic.

4. The general law for the formulation of psychical ills is that they arise as the result of mental conflict.

5. Where this takes place we get a lowered vitality, the bitterness of which tends to be increased by the consciousness that it ought not to be. Joy in living should be regarded as both the norm of human life and its justification.

6. When this joy is diminished, when conflict claims the mental energy instead of externalia which might stimulate joy into being, egoism results. This mental state may lead to the establishment of Neurasthenia.

PART II

MENTAL EFFECTS.

It follows from what has already been said that changes in normal mental workings may be expected to accrue when emotions become excessive, thwarted, or badly directed. Further, the changes are not confined to the mind, but may overflow and produce bodily changes at which we have glanced in the previous section. Here, however, we are concerned with the mental effects which are observed; and, in studying them at this place we are studying the mental symptoms of Neurasthenia, for taken together they form the neurasthenic character.

It may be better to explain our reason for this step—that is to say, for dealing with these symptoms at this place rather than in the chapter devoted to symptomatology.

Originally included among the mental symptoms of Neurasthenia were many phenomena which have now been relegated to other clinical disorders. Thus, the compulsion or obsessional neurosis has relieved us of the phobias; the Anxiety Neurosis has taken to itself the acute fear which was formerly described as a mental concomitant of our subject; while many other symptoms, familiar to the students of functional neuroses, have been collected together among the psycho-neuroses. Nevertheless, in describing the mental state of the neurasthenic, we cannot omit those features which characterise it, no matter how many new disorders arise to rob this entity of its symptoms. There are certain mental characteristics which are constantly seen when nervous exhaustion is present, and these deserve a brief recognition in this section.

We will commence by a description of perhaps the most constant characteristic—namely, introspection.

Introspection.

In hypochondriasis, the unvarying introspection constitutes the disease and produces the peculiar mentality which will be referred to elsewhere. In Neurasthenia, on the other hand, introspection is limited, is accounted for largely by the alteration in the ego which asthenia produces, and is not a constant, although a characteristic, symptom. The sufferer from nervous exhaustion is the host of so many abnormalities that his attention is claimed as much (or even more) by his internal workings, mental and physical, as it is by his outside relations. This, then, accounts largely for the introspection which is too thorough to be healthy. Introspection *per se* cannot be fully regarded as a mental abnormality, for, in some forms and in suitable circumstances, it serves a purpose, and is therefore beneficent. But, it must be remembered that, where it unduly occupies the individual's attention, it must produce features which are dependent for their existence on a loss of touch with environment.* When this occurs, we may justly regard the condition as abnormal, and by reason of its extent, as having emerged from normal psychology and entered the realms of psycho-pathology.

Introspection, moreover, when existing in the normal individual, is essentially present for a purpose—namely, the examination of his own apparatus. It is only

* "Many a dull boy is supposed to be stupid when he is simply introspective" (Carpenter, *Prin. Mental Physiology*, p. 136); also "Introspection which starts with the purpose of finding out one's absurdities is not likely to be very mischievous" (George Eliot, *Theophrastus Such*, p. 147).

present for a time, and when its task is brought to a satisfactory conclusion it ceases. Contrast this with hypochondriasis, where no mental feature exists which can compare in magnitude or importance with the watching and criticism of the functions of the entire system. In between normal introspection and hypochondriasis we encounter the instrospection of Neurasthenia, which may sometimes be entirely due to the many sensory and visceral disturbances which the malady engenders, thus rendering some degree of introspection more or less inevitable; although it may be out of all proportion to the background of illness, and thus hypochondriacal in its manifestations.*

Let us study in more detail the introspection which is characteristic of this malady. The healthy man is unconscious of the workings of his involuntary muscles, or of receiving sensory impressions from his large cutaneous surfaces (unless in response to stimuli whose origin he understands), and is conscious of few (if any) of the mechanisms which determine his organic processes. By this statement we do not mean that he has disregarded the workings of his mind, but that he has not applied his psychological knowledge, if he has obtained any, to himself, and has not succeeded in making what he has learnt "fit in" with his own previously acquired mental dispositions. The neurasthenic, on the other hand, is constantly receiving stimuli from his viscera, he feels his heart beat; and he experiences many other abnormal sensations associated with this important organ; he rarely digests without

* See the account of a case of Neurasthenia complicated by Hypochondriasis described by the author in the *Practitioner* for August, 1915, pp. 241-242.

suffering from sensory disturbances which produce what we may fairly call "mental indigestion"; and the meal is often followed by a mental strain consequent upon the many stimuli received from the digestive centres. His skin is the possessor of abnormal sensations: he sees a moving panorama of fantastic images; his very soul is filled with doubts, fears, and anxieties, which are the analogue of his physical distresses. Can it be wondered at, therefore, that he turns his "mental searchlight" inward instead of outward, seeking to discover the cause of these unpleasant occurrences?

Rather would it be surprising if he was able to keep in touch with his environment in the same way that the normal man can, when we consider the calls which this physico-psychical disease makes upon his attention. In the worst cases, these are forcible, constant, and persistent, and in time they form a path which his steps must follow.

But it should be emphasised once more that the introspection of Neurasthenia has a solid basis, at all events in its origin, and it is this fact which separates it so markedly from hypochondriasis. There is no *purposeless* looking-inwards in Neurasthenia, no introspection for its own sake, so that introspection is only one (if sometimes an important) feature of the case in the disease we are studying, while it constitutes the disease itself in hypochondriasis. It is true, and this must be said to prevent misconception, that the hypochondriac has evolved complicated psychical associations which alter this simple introspection to an introspection hampered and shackled by complexes, repressions and the like; but in its simple uncomplicated form

it is introspection which constitutes the real feature of the disease.

The introspection which is encountered in Neurasthenia takes the form of a constant watchfulness of the functions of the mind and body, and is associated with undue anxiety as to the healthy functioning of the organs in general. It may be that some organ or group of organs is marked out for special consideration; and the patient may lay undue stress upon his memory, which he states is defective; upon his inability to concentrate his thoughts, or the like; or, on the other hand, he may be introspective with regard to a physical function—*e.g.*, elimination, either renal or intestinal; he may be constantly examining the skin, or he may have undue interest in his heart or lungs.

The degree to which introspection develops in the course of Neurasthenia is very variable; some patients exhibiting marked signs of self-inspection, while in others it is present in only a slight form. It is probably true to say that all patients suffering from this malady possess introspection in some stage of the illness and in some degree. In the mildest cases, it may only take the form of some anxiety as to why they should be conscious of their visceral workings, and some self-questioning as to the origin of this condition.

Closely allied to introspection, there frequently exists a condition which we may call "recrimination." Some neurasthenic patients having experienced the symptoms of Neurasthenia, and having utilised their introspective powers in the endeavour to throw some light upon their abnormal workings, attempt to attach blame to some actions in their past life which might plausibly be made accountable for their ailment. This

is rarely a serious symptom and in no way does it approach to the self-accusations so frequently associated with various forms of insanity. It is only mentioned here in passing, as an analytical study of the mental make-up of the neurasthenic demands attention to small and even inconstant details.

It is to the patient's introspection, also, that the doctor owes the lengthy account which he will receive as to the symptoms of the particular case. He will be told that the memory is very defective, and many instances will be adduced to show that this really is so. A little care, however, will show that this is due to the careful watch kept upon himself; and this watch makes it impossible for the patient's mind to work evenly and in an orderly manner. These patients frequently bring an account of their case, often filling many typewritten sheets, as they explain they will forget "half they wish to say!" In their eagerness to derive benefit from the consultation, they are anxious to help as much as possible—hence the typewritten notes. They do not trust their memories, because they do not trust their minds.

Ballet refers to "a loosening of the bonds that render stable the synthesis of the ego," and this phrase succinctly describes what may be assumed to be operative in these patients. If we realise this, we shall be able to grasp the details of the peculiar mentality of the neurasthenic, with more likelihood of understanding his outlook, and in consequence we shall be better able to treat these unfortunate sufferers with a judicious blend of sympathy and discipline.

MENTAL ASPECTS OF NEURASTHENIA

Abulia.

Abulia, or weakening of the will, is stated by some authorities to be constant in Neurasthenia, and certainly we have ample evidence in the persistent vacillation, the frequent changes of plans, and the impossibility of remaining constant to any determination. But another aspect of this question has been emphasised by Déjérine, and I quote his own words on this point: "According to writers on the subject, it would seem as though abulia constituted a most important psychological symptom of neurasthenia. This is a great error, coupled with profound injustice. When they bring such a judgment to bear upon the patients, they confuse two essentially different things. The will does not act in a void or in space; and there are, as a matter of fact, two kinds of will—the will of itself, a psychological faculty which supposes in the patient the disposition of a quantity of given energy, and the practical will, which consists in making this energy move along certain definite paths. The neurasthenic very often possesses a storehouse of energy which he, moreover, expends, but expends unwisely and unprofitably, without any practical result. He makes a brave struggle, but for nothing. His will is there but it has nothing to rest on; what it accomplishes is of no value."* Again Déjérine says: "The neurasthenic may preserve what is virtually a will, which he no longer uses, because previous experiences of his weak moral condition have impressed him with his sense of helplessness. He has reached the point where he does not make any effort because he is certain beforehand

* *Psychoneuroses and Psychotherapy*, by Déjérine and Gauckler, p. 191.

that no result can be obtained. Now, as far as the practical will is concerned in its application to external things, one can very well see that preoccupations and obsessions which lead to a life of self-absorption may peculiarly inhibit it. One really cannot be too self-absorbed and at the same time pay proper attention to external things. The neurasthenic lives wholly in himself, and hardly permits any interests concerning outside activities to cross the threshold of his consciousness.”*

In this last sentence we see that introspection may very well, in this writer's opinion, be the cause of deficient will-power, and we can trace the part which self-occupation plays in slowly undermining will, and producing the vacillation which is so distressing to the patient. If the mind is always self-centred, it must fail to concentrate its attention on external objects; with the result that constant failure to concentrate the attention only serves, as Déjérine points out, to impress upon the neurasthenic his deficiency of will-power.

Probably in many cases the “weak will” of Neurasthenia partakes of this nature: it is more apparent than real. To accomplish tasks, which depend upon the exertion of the will, successfully we need the co-operation of other of the highly specialised mental faculties. His failure to co-ordinate these will give to the patient the impression that it is his will which is principally at fault, although when carefully enquired into we shall probably find that it is other faculties that are mainly concerned. It is this syndrome which is meant when we speak of “apparent will-failure.”

Many neurasthenics, nevertheless, are quite unable to

* *Psychoneuroses and Psychotherapy*, by Déjérine and Gauckler, p. 191.

exert their will-power in the successful manner to which they are accustomed when in health. This is shown by their inability to decide for themselves, or to adhere to a decision which has been made (perhaps by others) for any length of time. They become unduly dependent upon the counsels of their relatives and friends, and this further tends to weaken their own capacity for decision and to increase their dependence on others.

This latter is the real *abulia*, and may well be regarded as independent of the former kind. It is, in its essentials, the result of mental "asthenia," and its consequences are the failure of co-ordination between those functions, the successful co-operation of which produces mental work of the requisite standard. Thus are produced vacillation and inability to decide, and the way is paved for the other mental abnormalities which we are about to discuss.

In another section mention was made of the variety of Neurasthenic Fatigue, which is known as Abulic Fatigue, and emphasis was laid upon the fact that the fatigue in Neurasthenia is by no means always *actual*, but sometimes depends upon a former Fatigue which has left its impression upon the individual; much in the same way does constant lack of success, where the will is concerned, serve further to weaken this power.

Concentration and Attentive Control.

In another place we shall discuss the fatigability of the neurasthenic and the difficulty he experiences in making sustained effort, and the powerful stimulus required to produce work which is for the moment adequate.

The psychic analogue of this condition is undoubtedly

the difficulty in concentration which is so frequently present in nervous exhaustion. Nearly every patient suffering from Neurasthenia complains of his failure to concentrate his attention: and I would say that even so-called "spinal neurasthenics" exhibit this failure.

If we could utilise the ergograph to prove how readily the strong mental effort which is required to focus attention tires, we should doubtless be able to demonstrate this phenomenon as satisfactorily as has already been done with regard to the neurasthenic musculature.

We can, however, by making use of Weygandt's method, demonstrate that the mental fatigability is analogous to the physical. Briefly, this method consists in giving the patient a sheet of paper with columns of figures to be added. In health, the beneficial effect of practice is seen and it becomes possible to add more and more figures in each column, until the calculator becomes tired, when the columns of added figures become shorter. In the neurasthenic subject, however, the added portions of the columns do not lengthen, and mistakes occur earlier than in the healthy man. This, of course, is indicative of mental fatigue and shows that these subjects cannot either concentrate their attention successfully, or reap the benefit which the normal man does, from repetitions of the same actions.

Concentration makes demands upon our mental health which the mind of the neurasthenic is unable to meet. The act of concentration includes several factors, among these being will-power, control to "cut out" other stimuli, the direction of thought to its object, the interest taken in that object, and so on; and when perfected it presents all the mental energy

in one channel. Such a result is made impossible by nervous exhaustion; hence we find that few (if any) neurasthenics can keep their attention from wandering; far less are they able so to focus their attention that at will they can centre all their mental faculties upon one selected object. When the individual attempts to read, his "mind wanders"; when he writes he writes inconsequent sentences; when he enters into conversation his small stock of mental strength is soon exhausted, and finds himself unable to grasp quickly the points in the conversation, he becomes irritable and gives up the attempt in despair.

This feature—namely, weak attentive control or inability to concentrate—is a characteristic and troublesome symptom.

SUMMARY.

Neurasthenia, then, presents its symptoms, as any ordinary disorder does, and, likewise, being a psychophysical disorder, presents its *mental* characteristics. The place which heredity occupies in its etiology must not be under-estimated; for the occurrence of an attack of Neurasthenia is produced easily or otherwise, according to the degree of stability possessed by the individual. The ease with which Neurasthenia can be produced depends largely upon this latter factor. Some individuals, by their mental habits, pave the way to this disorder. While agreeing in part with the mental etiology of this disorder, as outlined by the psychological schools, led by Prof. Freud, we should give due weight to other schools of Psychopathology, for example, the American schools, which tend to regard neurasthenic symptoms as due to a mental dissocia-

tion, analogous to that encountered in psychasthenia, hysteria, etc.

We should always remember that mental symptoms, although sometimes vague and sometimes overshadowed by the physical, are only to be expected in a disorder in which exhaustion is so prominent a feature.

CHAPTER IV

GENERAL FEATURES OF NEURASTHENIA

IN describing the symptoms of Neurasthenia, we are dealing with a subject of vast range, any theory of which is open to criticism. For many symptoms described by some authors are ignored or negatived by others; while some symptoms attributed to this malady may justly be regarded as dependent upon an associated morbid condition, or upon a coincident feature which may be independent of the main lesion. Now this very fact makes an accurate yet inclusive description a matter of difficulty, and in endeavouring to omit no symptom of importance some features may be included whose constant association, as the result of the central nerve condition, may be doubted by some. As an instance, if gastrectasis is commonly observed in this malady, we are justified in describing the symptoms of this condition in this section: for its presence may reasonably be attributed (certainly in some cases) to the underlying nervous asthenia. Again, Neurasthenia produces certain well-recognised types of mental and physical characters; and we can observe these types, with many smaller variations, to be fairly constant, and their recognition is a distinct help to the diagnostician.

These types, however, vary in their characteristics

according to different authors. The reason of this difference of opinion, however, is not far to seek, for types of this disease depend partly upon the form which the Neurasthenia takes, partly on the individual temperament upon which it is grafted. Thus it will be seen that descriptions of such types must of necessity vary in so far as they make allowance for the varying personal factor. But their main outlines are characteristic and constant, and we are therefore justified in spending some time in their study. Let us consider the different types as commonly observed.

It has been customary to describe two main clinical types of neurasthenia, which, for convenience of description, we will call the *dolorose* and the *sthenic*, the *thin* and the *well-nourished*, or the *depressed* and the *excitable*.

In the former of these, which we may describe impartially as *dolorose*, *thin*, or *depressed*, we have a fairly recognisable class of neurasthenic patients—or, to put it in other words—we see a type which is often the subject of nervous exhaustion. The patient is *thin*, sometimes markedly so, very *depressed*, with a marked lack of concentrative ability, an almost shrinking attitude as regards his fellow-men, a “drooping” figure, and a marked dislike of discussing his illness; he has no desire to talk at length of his aches and pains, neither does he welcome the questions of the physician; he is frequently extremely upset by trivial causes—*e.g.*, slight variations of temperature appear to him as extreme degrees of heat and cold, and any pain he suffers is out of all proportion to its proximate cause, and is undoubtedly magnified by the acuteness of his sensibility. Such a man possesses a *megalopore* which enlarges all sensory impressions, and thus increases the discomforts which in normal health are dismissed without attention. He is a silent, almost morose companion—in all probability he is pondering upon his abnormalities—and in him fatigue is rapidly and readily produced.

Of this type Bouveret says: “The patient is pale and thin, without strength or courage, and always sad and dejected. He sees everything from the worst side. He rarely smiles. He goes along with his head down, avoiding the looks of others, his eyes languid and dull. He hardly dares look people in the face when he speaks to them, and the vagueness of his look is as it were a sign of powerlessness, an avowal of the inferiority of his moral strength. He always has the gait of a tired man; he is usually very sensitive to cold, and

is clothed in summer almost as in winter; his speech is slow, broken, and trailing; this neurasthenic is not talkative."*

This type of patient may or may not exhibit irritability, in the latter case it will be of a spasmodic character. But it is weakness with depression which is typical of this patient, not necessarily irritability. Let us contrast this picture with our second type. Here we see the fat neurasthenic, which some authorities declare to be the most difficult to cure.

Such a patient strikes the physician at first glance as "the picture of health." He will present all the appearances so often associated with an out-of-door life; is frequently robust in figure and fresh-complexioned. This man will describe his symptoms with gusto, and will, without encouragement, continue his description until all symptoms have been satisfactorily tabulated. No detail of his sensations, past illnesses, family history and present condition, will escape his delineation; in fact, he is often a very suitable model for the student and doctor in his thorough method of case-taking. "The man with slips of paper," as Charcot dubs him, is, nevertheless a neurasthenic, and not, as one might be led to suppose, a "malade imaginaire." For, in spite of the apparent enjoyment of his abnormalities, such a patient is really desirous of cure, and does not revel in his symptoms as such, but simply, as a result of his anxiety for cure, takes infinite care that he omits no point which, in his opinion, the doctor should know. This is such an important point for the medical advisers of these patients to realise that considerable emphasis must be laid upon it. No doubt, confusion has existed between such neurasthenics and patients suffering from imaginary ailments, but a careful observation of all discoverable features is generally able to settle the diagnosis. It is worse to regard a neurasthenic as a neurotic than it is to waste sympathy upon a neurotic in the mistaken idea that he is a neurasthenic. Such mistakes are more often harmful than is generally recognised. For the impression which is made upon the mind of the patient by the attitude of the doctor at the initial consultation is of prime importance to successful treatment.

The well-nourished neurasthenic is more often the possessor of ill-defined symptoms than the previous type. He often exhibits the finer mental and physical abnormalities which are manifested in phobias and fibrillations, in vacillations and in paroxysmal tachycardia and similar upsets. Speaking broadly, then, it is this type which presents the greater number of abnormal features, yet, even with these symptoms, diagnosis is often difficult. For many (but not necessarily all) of these abnormalities are subjective, and conse-

* Quoted in Ballet's *Neurasthenia*, p. 40.

quently make the decision between neurasthenia and other functional disorders a matter for careful consideration.

Many other types of patients suffering from this malady have been described by different authors, but these two, which we have now briefly dealt with, are the most characteristic. There exists, it is needless to say, an endless variety of patients who form minor types connecting these two main groups—in fact, some may be truly said to be undeterminate, exhibiting some of the features of each type, and so forming a hybrid. To make this matter clearer, we will annex in tabular form the principal characteristics of the two types, showing the main features in which they differ: but it must be remembered that many of these features are not truly subjective and can be investigated by the physician before they are accepted as existing. The symptoms themselves can often be corroborated by careful interrogation of the patient, and many mistakes in diagnosis and treatment will be avoided if we investigate as a matter of routine all such related facts.*

	<i>Thin Type of Neurasthenic.</i>	<i>Well-nourished Type of Neurasthenic.</i>
<i>Figure.</i>	Thin, sometimes almost emaciated; round shouldered.	Fat and healthy. Fresh colouring.
<i>Expression of Face.</i>	Abstracted; furtive.	Often expressionless; stolid.
<i>Stature.</i>	Frequently tall.	Variable.
<i>Mental Outlook.</i>	Reserved and reticent; dislikes discussion of malady. Rather brooding.	Loquacious and energetic (up to a certain point only). Memory good.
<i>Main Symptoms.</i>	Constant fatigue, readily produced; mental and bodily languor. Frequent headache; vasomotor abnormalities common; feels changes of temperature. Dermographia and stigmata readily obtainable. Unable to walk, except short distances.	Fatigues easily, but not so lasting as in other type. Digestive disturbances common. Sexual worries and genital disorders often seen. Recites even emotional symptoms readily; often has a list of main symptoms.
	Constipated. Low blood-pressure.	Constipated. Blood-pressure 'less often low.

* Déjérine relates the case of a lady who not only said she was unable to hold her arms out for two minutes without fatigue, but was actually unable to do so; but when he questioned her he found that she spent an hour each morning doing her hair—in other words, by his skilful interrogations he ascertained that she was unable to keep her arms extended when her attention was drawn to the act; but, she was perfectly able to perform equally tiring tasks when she was not thinking of them *in connection with fatigue*.

Between these two types, then, the clinician must expect to encounter many variations; but the broad lines of those two types will serve as a guide, and furnish an introductory survey to a detailed symptomatology. It is needless to add that this classification is diagrammatic only, serving a practical purpose, and has been built up on the accumulated evidence of those who have had to deal largely with patients suffering from this malady.

CHAPTER V

ASTHENIA

By asthenia is meant a weak condition which is the antithesis of the reserve of strength which is available in normal health. Although we have already discussed fatigue in the section on Etiology, we must here refer to it as a symptom, and deal with it as manifested both locally and generally.

Asthenia shows itself in many ways—in neuromuscular fatigue, in rapid and prolonged exhaustion, and in “irritable weakness.” This latter condition is most aptly described by this classical phrase, and in spite of the voluminous literary works on this malady which have been contributed by neurologists since the origin of the phrase, its inclusive aptness has never been equalled.

Reference has already been made to the help which the ergograph has given to the study of Neurasthenia, by demonstrating the ready fatigability of the neurasthenic muscle, and the longer rest-time which it requires to recuperate. This is true of all the voluntary musculature, and may be assumed to be true also of the involuntary muscles.

Déjérine draws attention to two different factors in the fatigue associated with Neurasthenia—namely, the liability to undue fatigue which really exists as the result of muscular and nerve exhaustion, and the impression of fatigue which comes without the expenditure of any energy, and he rightly maintains that this latter is in reality

a suggestive impression.* To put it in another way, the first kind of fatigue is consequent upon "the batteries being run down," and the second is the result of sub-conscious memories of fatigue and the auto-suggestion of fatigue engendered by these memories. The comparison of the nerve energy available in neurasthenia to the charge in a partially exhausted accumulator is singularly apt; for we are all familiar with the fact that, when a battery begins to come to the end of its charge, after a period of rest it will apparently again be fully charged, but a short period of work will soon show how little strength there really is left. An exactly analogous condition is present in nerve exhaustion; for rest will apparently restore normal tone, and, in slight cases, make work possible; but a little expenditure of energy shows the small reserves at the command of the patient.

The neurasthenic, therefore, tires easily, and the fatigue is lasting. We need not labour these classical facts, but impress upon all students of this malady that the distinction between the two varieties of fatigue—the real and the suggested—is important and well worth remembering. Its use is shown when we are trying to distinguish which factor—the mental or the physical—is of greater import in any given case; for if we assume the fatigue to be the result of auto-suggestion, and many cases are of this nature, then must we include in our treatment suitable therapeutics to combat this.

Another aspect of this fatigue is, as Deschamps has pointed out, the inability of the neurasthenic to make sustained or progressive effort; a condition which he described by the term "aphoria." In speaking of the asthenic he says: "He passes through successive degrees of strength; these are degrees of strength which endeavour is powerless to modify. An asthenic possesses to-day a definite capital of force; this capital is stable for the time being, and always yields the same revenue. To work beyond that makes him bankrupt—that is to say, it brings on a state of intoxication or sharp attack. It is a capital which cannot be changed either by progressive endea-

* See also *Abnormal Psychology*, by Isador Coriat, pp. 308-309. This author views the neurasthenic fatigue as being solely due to the mental impression retained by former fatigue.

your or by medicines. It is necessary for the whole organism to be improved and transformed by the efforts of nature, aided by wise therapy, in order to place it on a little higher level. On this new level he would possess a new capital of strength a little above that of the preceding, but which would remain the same for a certain length of time, and which cannot be modified by the impulse toward improvement."*

It must be understood that such asthenia as Deschamps described is only found in a certain proportion of neurasthenics; that its permanence (which he implies) is, as pointed out by Déjérine, a discouraging factor, and one that is liable to do harm to those patients who read medical literature dealing with this subject.

Another manifestation of the same exhaustion is seen in the constant feeling of epigastric weight of which these patients complain. Thus the involuntary musculature is likewise affected, and these visceral sensations are in keeping with the lack of tone which this disease produces. As Tanzi points out, these functional disturbances of sensation, these feelings of heaviness and distension, these illusions of repletion or emptiness, may arise from very slight oscillations in the muscular tone of the abdominal walls, and cause transient states of nausea, false appetite, and voracity. Such symptoms as these, apart from the presence of definite visceral atony—*e.g.*, gastrectasis, etc.—point to generalised involuntary atony of the visceral system.

At the extreme opposite end of the variations in nervous fatigue which are met with in this disease, there exists a condition known as *abulic* fatigue. Such cases are those in which the loss of will-power is marked, in which the patient is unable to establish the connection between the mind (which is in itself jaded) and the

* Deschamps, quoted by Déjérine and Gauckler.

pyramidal tract, and thus commences each day with firmly established convictions of his powerlessness successfully to accomplish any task. They know they are unable to walk—they tire before they have tried, and as Dubois says, their fatigue is due to a conviction of helplessness, following a real sensation, and exaggerated by the pessimistic state of mind which the fatigue itself produces. These are the patients who may be in bed for weeks without ridding themselves of fatigue; and who, after such a rest, in which no active movements have been permitted, are still exhausted. "One ought not to call it fatigue when there has been no work performed," Dubois maintains.

All forms of asthenia, from whatever cause produced, can be grouped together, when we come to consider their manifestations; and there is no need to attribute one kind of fatigue to one cause and a different variety to another. Fatigue is the classical and constant symptom of this malady; fatigue which is not benefited to the same extent that most normal tiredness is by rest; and fatigue which is lasting and, in most cases, generalised. It affects every action, movement, posture, and function; many small acts which normally are automatically and regularly performed necessitate voluntary supervision (or the patient considers they do) for their adequate performance. This is only another manifestation of fatigue. Many other symptoms, which we describe elsewhere, have a direct bearing, or originate in essentials, from this fatigue.

To recapitulate, therefore, the fatigue of Neurasthenia may be shown in the entire neuro-muscular apparatus; it results in languor and inability to do work; is characterised by lapses in which short spurts are possible;

but no sustained effort. It affects the general system usually, but in some patients it may have exaggerated local manifestations. The acts of ordinary life are difficult if not impossible; the head needs support as the neck-muscles ache; the arms cannot be held out for any length of time without fatigue; the legs refuse to walk any distance; the muscles of the back find the support of the spinal column a burden, and demand frequent rests in the recumbent position.

CHAPTER VI

HEADACHE*

THE headache of Neurasthenia is characteristic, albeit varying in localisation in different cases. It is usually a vertical headache, and manifests itself in many and various ways. Possibly the commonest of all the cephalic sensations, of which headache is but a single example, is a feeling of weight or *pressure* on the crown of the head. This is usually quite localised and remains so, radiation being unusual. It tends to vary slightly at different hours of the day, and to be worse on some days than on others. It cannot always be literally described as a headache, as it partakes more of the nature of an abnormal cephalalgia. It is more a feeling of weight than an "ache," and is variously described by different patients. But in some cases, and these are in the minority, the pain is so bad as actually to resemble a cerebral abscess or tumour, and these unfortunate sufferers are often of the opinion that some lesion of this nature exists. This type of neurasthenic headache is "pressure" in character, strictly localised, intolerable in persistence and constantly present, intermissions between attacks of the pain being few.

Fortunately such headaches are not always present, and patients much more frequently complain of abnormal

* This symptom is being discussed at this place on account of its importance in this disorder.

sensations in the head than of actual pain. Charcot's original description of the neurasthenic headache as "helmet" in distribution, is often utilised by patients familiar with the literature of this malady to describe their condition. But this is only one of the many forms which this feature takes, and probably not the commonest. "Skull-cap" is another variety; while a feeling of a band stretched tightly around the head, or a boring sensation in the region of the occiput or the nape of the neck is frequently met with. One patient of the writer's said that her head felt as if it were filled with cotton-wool too loosely packed; while another likened the sensation to what she imagined nails driven in from one temple to the other would feel like. Throbbing, likened by patients to the feeling of "their brains beating," is seen; "heat in the head," "brain on fire," "skull tightly clasped in a vice," "emptiness or absence of any contents in the skull," "pain like a heavy weight on the top," are phrases used by patients to express this cephalalgia. Patients who suffer from such cephalic sensations as these often associate them with mental processes, and fancy that these abnormal sensations are caused by brain work; or, in other words, that these sensations are the outward signs of their disordered mentality. It is quite a common occurrence for such symptoms to be ascribed by the patient himself to the general exhaustion, and consequently, as Déjérine points out, this again tends to perpetuate the headache.

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The neurasthenic headache has several varieties, which differ in their details. One kind is present on

waking, remains constant until the middle of the morning; improves until lunch, and suffers an exacerbation after the midday meal; improves in the late afternoon, and again becomes troublesome in the evening. Another variety remains constant throughout the day, with the single exception that it becomes worse after meals and remains bad at such times for anything up to an hour.

Still another variety exhibits its worst form in the early morning and improves after the early cup of tea, or the first meal, and then disappears for the rest of the day. Such a cephalalgia is in all probability allied to the headache of arthritism, lithæmia, and general intoxications, as its manifestations are so similar. It is generally not severe, neither is it associated with visual or other sensory disturbances, as are other neurasthenic headaches. It may be regarded as one of the slighter cranial disturbances associated with this malady, and, as we shall see when dealing with symptomatic treatment, is readily amenable to therapeutic measures.

We may fairly assume, when discussing the varieties of headaches observed in Neurasthenia, that the several kinds are caused by vastly different causes. And here it becomes necessary to refer to a feature of this disease, which is dealt with in full in a subsequent section—namely, the variations in blood-pressure seen in this malady.

This is well instanced in the two types of Neurasthenia already referred to, for, while the thin type is almost invariably the possessor of a lowered blood-pressure, from which originates, or with which is associated, general mental and bodily depression, the “well-

nourished type " may (it does not necessarily follow) have an increased arterial pressure. Now this has a direct bearing upon cephalalgia, for some of the features of this disorder have a close relation to the condition of vascular tension. Thus the headache characterised by "throbbing," by "beating," by a fulness of the skull, and by constant aching (which, however, is varied by changes of posture of the body), is in many cases seen in association with hypertension; while the headache which we have likened to that seen in arthritism, etc., is in all probability of similar character. On the other hand, many of the head pains which habitually become worse after meals, in the evenings, after mental work and so on, are frequently noted in association with hypopiesia. The fact, constantly observed, that this class of headache is improved by outdoor exercise is corroborative of this statement, for muscular exercise always temporarily raises blood-pressure. Again, this "hypertension headache" is frequently improved by rest in the recumbent posture, associated with stimulating tonics such as quinine, arsenic, and digitalis. As it is also ameliorated by splanchnic pressure, by the administration of pituitary extract, adrenalin, and massage, it would seem that we are justified in regarding it as primarily of vascular origin. Venous congestion, from any cause, produces headache which is similar in its manifestations. Thus, cardiac distress, renal inadequacy, pressure upon the jugulars by a tight collar, the breathing of impure air, etc., all tend to result in congestion of the cranium, and a supply of impure blood to the vaso-motor and other vital centres.

This condition of venous congestion must, there-

fore, be held responsible for a certain proportion of neurasthenic headaches, and these are usually seen in the early mornings as the result of sleeping with pillows too high or too low.* Such a condition must resemble, in its underlying pathology, the "bumping" headache already referred to as characteristic of hyperpiesis. The fulness is worse on waking, is relieved by drawing blood to the splanchnic area by hot fluid or food, is bettered by an intestinal evacuation, and by lying down, and in women by the removal of the corsets, thus depriving the splanchnic vessels of support and allowing their relaxation. There is doubtless an element of auto-intoxication in such headaches, as a high blood-pressure tends to be associated with faulty catabolism.

Again, eye-strain is responsible for a proportion of these headaches. We know that when defects of vision are remedied, improvement in this symptom takes place; and, in some cases, a more or less rapid improvement in the general condition ensues. The weakness in the intrinsic and extrinsic ophthalmic musculature is liable to produce a headache with undue ease, and this headache is commonly localised in the frontal or occipital regions. It comes on after reading, even for a comparatively short time, or after some other occupation necessitating a strain on the vision.

There are frequently tender spots in various localities of the cranium, similar to those seen in neuralgia, which would appear to be constant features of nervous exhaustion. These are dealt with in detail in the section on sensory disturbances.†

Speaking broadly, then, we may fairly regard headache

* *Index of Differential Diagnosis*, edited by Herbert French, p. 329.

† P. 143.

as a more constant symptom in those cases of Neurasthenia which have been produced by mental strain, and also in cases where the cerebral functions are more at fault than the spinal.

If we realise that in Neurasthenia the whole nervous system is hypersensitive (parts of it may be worse than others in this respect), we shall appreciate the fact that small causes, insufficient in health to produce any abnormality, are capable in this malady of generating results which are out of proportion to the cause. A realisation of this fact gave birth to the classic phrase "irritable weakness." We shall not be surprised, therefore, if our patients tell us that their headaches are caused by draughts, heavy hats, a hair-cut, or similar apparently trivial causes; and we must not regard them as drawing upon their imaginations in search of a plausible reason. Rather must we never forget that undue sensibility is at the bottom of these features and not a fussy, over-excitable, hypochondriacal, neurotic,* lazy, or malingering disposition; and, above all, must the diagnosis be made from the sum total of symptoms and physical signs, and must be free from all irritability or impatience on the part of the physician.

One form of headache seen in this disease is due to primary vaso-motor disturbances, and is associated with external manifestations of vascular derangements—*e.g.*, flushings of the ears, cheeks and neck, "*muscæ volitantes*," conjunctival congestions, etc. Such a flush is characteristic in its commencement and dis-

* In this context we employ the word in its popular sense and not in the sense used by Huxley—namely, as a change in the physical basis of consciousness, as distinguished from psychosis, the corresponding change in consciousness itself.

tribution. It is first noticed in the area between the mastoid and the parotid gland, in the region of the angle of the jaw—and spreads down the neck and into the cheek. It is frequently unilateral, and irregular in its continuance. The associated headache of this nature has been called *cephalalgia vaso-motoria*, and may be seen in association with other disorders of vascular origin, as urticaria.

The various forms of neurasthenic headache to which we have referred are all commonly observed in Neurasthenia and are, of course, only some of the sensory disturbances in connection with the head. The abnormalities associated with cerebral sensation are open to almost infinite variations, as the underlying cause is associated with differing temperamental and constitutional factors. Such a condition makes a brief description of neurasthenic cephalalgia a matter of difficulty.

To sum up, however, we have three main types of neurasthenic headache, which we may, for convenience of description, divide into the following groups:

1. Those headaches dependent upon cerebral exhaustion—mainly seen in cerebrasthenia.

2. The headaches depending more directly upon alteration in the blood-pressure; the headache of venous congestion; the headache of hyperpiesis; and that of deficient cerebral circulation.

3. The headache which resembles that seen in lithæmia and allied conditions. This variety must be assumed to be toxic in origin.

Although this division is arbitrary, it serves the purpose of affording us a working scheme to differentiate the varieties of neurasthenic headache.

CHAPTER VII

GASTRO-INTESTINAL SYMPTOMS

It is necessary, when considering those disorders of the stomach and intestines which are associated with Neurasthenia, to review briefly their relation to the general symptomatology. We are once again faced with the question—Are these disorders the result of the general lowering of the nervous “tone,” or are they causative factors? We have to ask ourselves whether the particular symptom has contributed in part to the Neurasthenia; whether it is entirely responsible for it; or whether it is simply the result of a general lack of tone which has been produced by other causes. We are deeply concerned in obtaining an accurate answer to these questions, or, at least, in forming some clear conceptions upon the subject, for upon this depends much of the subsequent treatment. We cannot at this place discuss in any detail the evidence as to the part played by gastric disorders in producing nervous exhaustion, but we may express the following opinions, which summarise the views generally held upon the subject.

1. Gastric and intestinal disorders are exceedingly common in Neurasthenia.

2. In many cases they can be proved to have preceded the nervous symptoms by a lengthy period, sometimes years.

3. In other cases the gastric symptoms seem to follow the appearance of the general phenomena of Neurasthenia.

4. They are a serious and frequent cause of increase in the severity of the malady, and exert a grave and ever-present depressing effect upon the nervous system.

5. We must therefore assume that in some patients they act in a causative relation, whilst in others they are the result of the general disorganisation of the innervation of the body.

So far, then, as the commonly observed digestive disorders and functional disturbances affect Neurasthenia, we shall discuss the subject under four headings; but it must be clearly understood that this division is for practical convenience only, as these varieties frequently overlap, so that one or more may co-exist in the same patient.

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|-----------|---|---|---|----------|
| <i>a.</i> | { | 1. Anorexia and disturbances of
functional origin.
2. Catarrhal disorders.
3. Disorders of secretion.
4. Dilatation and ptosis. | } | gastric. |
| <i>b.</i> | { | Constipation:
1. Intestinal.
2. Rectal. | | |

I. ANOREXIA.

The normal intake of food and its assimilation depends upon many factors. In the processes of mastication, deglutition, digestion, absorption and assimilation, we again meet the two essentials—mental and physical co-operation. In this section of the disorders of digestion we must realise that we are studying conditions which are largely, if not primarily, of psychic origin.

It is now many years since Physiology demonstrated in a manner which satisfied physiological science, that mental processes played a large part in digestion, and that what, for convenience, we refer to as "functional" disorders of digestion often have their origin in mind rather than body. While this had been realised for generations by the ordinary man, it required experiments and tangible proof before it could be spoken of in medical works as established. Now we know that appetite is dependent upon outside stimulation; that hunger is an endogenous product; and that all the acts of digestion, secretion, chemical changes, motor functions, etc., are under dual control—that of mind and body. Thus hunger is the result of the absence of a customary object, but is totally different from what we understand by appetite. Appetite is the result of a mental stimulation by extraneous agents—a savoury smell, a culinary masterpiece—and, while it is certainly more active when in association with hunger, that this latter is not necessary is proved by the accomplishments of gourmets. Here we see appetite evoked by artificial stimulation, which is active even in the absence of hunger.

The importance of this fact to our study will be apparent. For disturbances in the general nervous mechanism will soon affect the delicate mechanism of digestion, and added to these may be the abnormal psychic processes which abolish normal appetite or upset the gastric tone. Thus the normal sequence of hunger, appetite, the taking of sustenance, digestion, and absorption of the digested food, is no longer in existence. In its place comes distaste for food, absence of hunger, nausea and the other symptoms of gastric

upset. From whatever cause, whether of bodily or mental origin, the symptoms are the same; but the anorexia of mental origin deserves a little fuller investigation.

The persistent refusal of food with consequent emaciation, a condition to which Gull gave the name of *Anorexia nervosa*, and which is usually seen in the subjects of hysteria, has its analogy in the "nervous" abstinence from certain articles of food, or even from almost any foodstuff, which is seen in Neurasthenia. The origin of this condition is twofold; first, it may be caused by the adoption by the patient of an eliminative dietary with or without medical advice; this has abolished or attenuated the psycho-physical process which we call appetite, so that when the patient, for so he now may be called, desires to resume normal food, he finds the mechanism of digestion upset; or it may have resulted from previous attacks of gastric disorder which have left their mark (either physically or mentally) upon the individual, thus impairing both the physical and psychical mechanism. It must be clearly understood that this condition is not the same as the anorexia nervosa met with in hysteria.

It is a common experience in medical practice to encounter such cases, which may truly be called "functional gastric disturbances." Their origin is mainly psychic, although errors of diet in the past often play a part in their production. The patient eats under strict directions, but rarely gains any benefit from the food; and it would almost seem as if the power to assimilate has disappeared. The desire for food, with its driving power behind, has vanished, and a part of the complex machinery of digestion is lacking; with the

result that the mechanism is upset and is unable to perform its functions in a satisfactory manner.

These are the cases where a history is often obtainable of a voluntary change of diet, generally originated by the patient, with some definite object in view. Thus, a sudden conversion to vegetarianism, a keen desire to alter weight, or the pinch of financial privation, decides the patient to cut down his nourishment. This is often done so thoroughly that a totally insufficient dietary is decided upon, one, too, of an unsuitable nature. When the digestion has become thoroughly disorganised, and general bodily symptoms set in which the patient realises to be dependent upon deficient food, then the attempt is often made to resume a rational dietary. But often too late, for the gastro-intestinal tract has lost its former tolerance, and refuses the increased nourishment. Then we obtain a true anorexia, and from a sufficiently ordinary cause. Or possibly the enlarged diet appears to be successful, but an alteration in weight does not result. The vegetarian, when ordered a meat diet, often shrinks from animal food with loathing, and thus the proper psychic stimulation which is essential for perfect digestion is wanting.

Deficient general innervation is frequently associated with functional gastric neuroses, and Neurasthenia exhibits these in most cases. Disorganisation of the mental stimuli which produce appetite and bring about gastric secretion, must of necessity upset the physical digestive processes. For these stimulate the commencement of digestion, and without them the meals reach an unprepared viscus.

This, then, is one of the common causes of anorexia, and is not infrequently encountered in cases which come

under the care of the physician on account of general bodily symptoms. In many such patients it is possible that unwise tampering with diet has been the origin of the entire malady; for no machine can work satisfactorily without efficient fuel.

2. CATARRHAL DISORDERS.

The neurasthenic rarely possesses a perfect digestion, and hence we seldom meet with an established case (certainly if of any considerable duration) which shows no symptoms or signs of disordered gastro-intestinal functioning. The furred tongue, offensive breath, sallow cheeks, acne rosacea, and local abdominal signs, are by no means uncommon. Such cases exhibit a condition of gastric catarrh, which may not be the primary lesion, but at all events is present. It may be secondary to other local abnormalities, such as gastrectasis, or may result from long-continued abuse of food and stimulants. Moreover, the neurasthenic, who always feels tired, is only too frequently relying unduly upon the temporary stimulation produced by alcohol, tea, coffee, etc., with the result that the gastric mucosa, which may already be in an unhealthy state, receives constant irritation from the particular stimulants in which the patient indulges.

In normal health, the process of digestion is unattended with any feelings or sensations, except in so far as the subject is conscious of a sense of repletion. But almost every possible grade of difference of susceptibility to gastric disturbances is to be found; for whereas some persons cannot commit even a slight indiscretion without having to pay for it (in some cases out of proportion to the error), others seem able to eat

any food, it matters not of what quantity or quality, without any subsequent discomfort.

We have often observed that sufferers from Neurasthenia are especially liable to digestive disturbances; that these are frequently of a greater severity than would be expected; and that there seems to be, in a certain proportion of cases, a direct relation between the gastric upset and an exacerbation of the nervous symptoms. For instance, a patient with the neurasthenic diathesis will, for no apparent reason, develop acute indigestion; no particular article of diet can be made responsible for the attack; and while suffering from it the nervous disorder becomes intensified. The diet has consisted of plain nourishing food, which, it may be, the patient has adopted after previous attacks. It would seem that the digestive system, which is the furnace of the body, is in an irritable state (in keeping with the general irritable weakness), and this irritability extends not only to the motor power but also to the healthy mucous lining and the glands which deliver the digestive juices. These patients, it is assumed, are more easily upset than the normal man, and are more liable to digestive disturbances, for the reason that the innervation to the stomach and the consequent blood-supply is faulty.

Thus, some small indiscretion in diet—some irritating substance or some food for which the patient has no fancy—will produce functional disturbances of no mean degree. This latter may in turn develop into actual gastritis. Gastritis, indeed, is exceedingly common in Neurasthenia. Its presence may be suspected where the symptoms show a stubborn persistence, and when they develop a certain and morbid intensity. For, in

addition to loss of appetite, a sense of fulness, epigastric discomfort, and nausea, there may be added actual pain, vomiting, malaise, and, if the attack be prolonged, loss of flesh. The neurasthenic is slow to recover from all his local ailments, and this catarrhal condition which is so readily produced is no exception. Now such an attack as this would appear to result from no single ascertainable cause, and the deficient innervation supplied to the stomach may, without improper speculation, be assumed to be partly responsible for it. Many sufferers from nervous exhaustion will be even heard to remark that "their stomachs are very sensitive," and that they have to avoid so many dishes.*

It is clear, therefore, that the slight functional upset, which we may loosely refer to as "indigestion," may in the neurasthenic be only the initial stage of catarrh; also, whereas in the normal individual this disorder is easily shaken off, in the subject of nervous exhaustion it is not only difficult to get rid of it, but is liable to pass into a definite catarrhal condition. As we shall see in discussing gastric dilatation, nervous innervation of the stomach is deficient, and this in turn leads to a loss of tone of its musculature. Likewise, we may assume that the general nervous state of the Neurasthenic does not make for the easy banishment of disorder, however

* The classical case of Alexis St. Martin—the hunter who was shot in the abdomen and developed a gastric fistula—is very instructive in this connection. For by means of the fistula, an examination of the mucous membrane of the stomach was possible; and after the alcoholic bouts in which this man indulged, the lining membrane of the stomach was seen to be inflamed and to be studded with small papules. Such catarrh, therefore, does develop after the ingestion of substances having an irritating action on the mucous membrane, and is, in many cases, doubtless present in the kinds of disorder we are studying.

initially slight, whenever the lining membrane of the stomach is affected; and that this factor, which may be associated with absence or diminution of the acid juice, is largely responsible for the development of catarrh.

The catarrh seen in neurasthenia differs in no way from that seen elsewhere; and yet it may have its own peculiar causal origin. All we need maintain is that the sufferer from nervous exhaustion is more liable to such a disturbance as this.

3. DISORDERS OF SECRETION.

Under this heading we have to consider two opposite conditions—namely, gastric irritation and gastric insufficiency, in so far as they are associated with the status neurasthenicus; and we have to discover any peculiarities that these disorders may possess when seen in a patient suffering from nervous exhaustion.

We shall discuss these under two headings—namely, Hypersecretion and Hyposecretion.

(a) *Hypersècretion.*

Three varieties of hypersecretion are recognised—namely, permanent hypersecretion, increased secretion at meal-times only, and intermittent hypersecretion.

Permanent hypersecretion is a serious condition in that it can, and frequently does, engender Neurasthenia by itself; or to be more definite, the visceral disorganisation produced by permanent hypersecretion is so great as to be a real source of nervous exhaustion.

The symptoms are characteristic, and must be considered from two standpoints—namely acute and chronic hypersecretion. In the first of these conditions we see an aggravated form of the chronic, for acute

hypersecretion is nearly always a sudden exacerbation of a chronic over-action of the gastric glands. Chronic hypersecretion may be met with in any person, old or young, male or female, but is particularly noted in people who have taken irregular meals and done a considerable amount of hard work, allowing insufficient time for digestion. When once firmly established it produces a cachectic person, pale, with a thickly coated tongue and offensive breath, who complains of continuous abdominal discomfort, which becomes worse during the latter part of the day, and usually begins to be severe after the midday meal. Thus, for from half an hour to two or three hours after this meal, when digestion is at its height, the patient will be in acute discomfort, with epigastric pain, generally of a burning nature, excessive flatulence, post-sternal discomfort, and nausea. These will pass off as the stomach empties itself, and the patient will gradually feel relief. But in such cases as these the relief is never complete, and more or less pain and discomfort are always present.

Acute attacks become superimposed upon chronic hypersecretion. In these the patients experience the sensations just described only in a more exaggerated and prolonged form. Pain will be present upon waking—the appetite will have gone and abstinence from food will but increase the hyperacidity, and allow it to exert greater action upon the gastric mucosa. Vomiting when it occurs results in the production of a quantity of sour fluid, and the pain in the epigastrium and behind the sternum is temporarily relieved. Constipation is usually present, but sometimes the bowels are loose, and lenteric diarrhœa is occasionally observed. The mouth is usually dry, but undue salivation, asso-

ciated with increased gastric secretion, is sometimes seen.

The general symptoms which are present as the result of this abnormal action are typical. They consist chiefly in frontal headache, mental sluggishness depression, neuro-muscular weakness, vertigo, functional cardiac trouble, and last, but by no means least, a drowsiness which is principally noted after meals (mainly after the midday meal), and is associated with a " heavy head " and a disinclination to move.

When hyperchlorhydria is only present at meal-times, its import is not nearly so serious as when its presence is permanent. In this variety, the discomfort and pain is of much more limited duration, and does not usually produce general nervous phenomena which can reasonably be traced to the gastropathy. Furthermore it is much more amenable to simple remedies, as its action can be adequately met by alkalies, carminatives, and other such drugs. This condition is characterised by heat or burning localised in the epigastrium. It is usually only present after meals or at all events is only bad during the latter half of the day. As is only to be expected, any food rich in proteid (*e.g.*, white of egg), usually affords instant relief from the pain.

The third variety of hypersecretion—namely, intermittent hyperchlorhydria—is of little interest in connection with Neurasthenia. The condition consists of temporary hypersecretion, which causes vomiting of large quantities of acid liquid (usually in the morning), accompanied by burning pain, which, however, soon passes.* It has been attributed to the influence of exciting emotions.

* A form of intermittent hypersecretion has been called " Reichmann's disease."

In the first two varieties already described (the acute and chronic forms of hypersecretion), it will readily be seen that both kinds may easily lead to gastric dilatation. Especially is this true of chronic hypersecretion; indeed some authorities maintain that gastrectasis is always present when the gastric juices are constantly in excess.

There can therefore be no doubt that the presence of chronic hypersecretion may be encountered in Neurasthenia, and that it plays an important part in the production of the malady.

(b) *Hyposecretion.*

This condition is even more commonly seen in Neurasthenia, especially when occurring at certain ages, than those abnormalities just described. It consists in a diminished secretion of gastric juice, with which is associated deficient motor functioning. The symptoms are noticed soon after the ingestion of food, and make their presence known by pains and discomfort, which are not strictly localised to the epigastrium. Although they may supervene as soon as fifteen minutes after food, their time of onset is very variable. The pain frequently commences in the upper third of the abdomen, but not necessarily in one spot (as is seen in gastric ulcer), and spreads to the axillæ, loins, and scapular region. Vomiting is uncommon, although it does occur in some cases.

This condition, if it becomes chronic, almost invariably leads to some degree of dilatation. The food remains an abnormally lengthy time in an undigested condition, with the result that the stomach muscle loses tone, and gastrectasis results. Certain ages are more liable than

others to the development of gastric insufficiency. Thus it is seen in elderly women, at the menopause, after exhausting child-birth, and sometimes exists as the sequela of a long illness. It is associated with a marked degree of wasting, and, as we have previously stated, may be seen in connection with a catarrhal condition of the gastric mucosa.

It is needless to say that such a deficiency must lead to malnutrition, and therefore, when seen in association with an established case of Neurasthenia, amelioration of the general condition can hardly be expected until the local lesion is remedied. But, although once again we meet with a factor which may be both cause and effect, happily its remedying, if not actual cure, is not a difficult matter. For medical treatment offers a ready help in this condition; and provided the insufficiency has not been too long established, the prospect of improvement in the local and subsequently in the general symptoms is good.

Where gastric insufficiency has become well established, only a small proportion of the proteid ingested can be so altered by digestion as to make it assimilable. Bouveret* believes that the secretion of the stomach in Neurasthenia differs considerably from the secretion of health, and mainly in its quantitative features. He considers that the free hydrochloric acid may diminish or even disappear at all periods of digestion. He further maintains that this is an early feature and associated with gastro-intestinal atony; but that, in spite of these changes in the acid principle, no alteration in the pepsine content of the stomach is observed. With regard to the flatulence which is seen in these

* *Trait. des Maladies de l'Estomac*, 1893.

patients, he believes it to be due to fermentation of the chyme.

Some writers divide this secretion into hypochlorhydria (secretion of a weak juice) and hyposecretion (secretion of an abnormally small quantity of gastric juice).* The result of either condition cannot be clinically distinguished; but when accompanied by diminution of vital ferments, they receive the name "*achylia gastrica*." This latter condition, however, is probably rarely seen in Neurasthenia, and the balance of opinion is in favour of diminution of free hydrochloric acid, or of vital active acid to below 0.1 per cent.

When deficient acid is present, in nearly every case the motor functioning of the stomach will be found to be faulty. An atonic condition is produced which, in association with deficient secretion, results in the typical picture of "nervous dyspepsia." Herzog† found in 14 cases of this form of dyspepsia, that the motor functions were impaired in 9 and normal in 5; and among those 9 patients, the greater number showed some degree of hypersecretion. He is, therefore, of the opinion that it is the motor function that is mainly at fault, associated with exaggeration of the secretion.

To sum up, then, opinion is divided as to the frequency with which hyposecretion, or deficient acidity, is met with in Neurasthenia. It has been shown that it does not necessarily produce wasting, even if present (Bouveret), as the intestinal ferments would seem in some degree to make up for the gastric deficiency. But,

* Hurst, *Practitioner's Encyclopædia of Medicine*, p. 232.

† Herzog, *Zeitschrift f. Klin. Med.*, Bd. xviii., 1890.

when present, it is frequently associated with derangement of the motor power of the stomach, and with sensory disturbances of digestion which have a harmful effect upon the neurasthenic.

4. DILATATION AND PTOSIS.

In spite of many contradictory views on this subject which have been published from time to time, there can be little doubt that loss of tone in the stomach wall is a frequent occurrence in nervous exhaustion. It is sometimes present, as can be ascertained by clinical observations, prior to the establishment of the general symptoms; in other cases it makes its appearance when the neurasthenic condition has become obvious. In patients who exhibit marked neurasthenic symptoms, examination of the abdomen should never be omitted, and attention should be paid to the condition of the stomach.

Atonic dilatation of the stomach makes its presence known to the patient by no symptom which can properly be called pathognomonic. It is gradual in its onset, and, apart from acute dilatation, which does not bear upon our study, is a slowly progressive feature. When established it produces a condition of stagnation of the stomach contents, which, in the habit of a vicious circle, tends to exaggerate the size and loss of tone of the viscus.

After meals, the patient experiences a sense of fulness and weight in the epigastrium and umbilical areas, associated with nausea and discomfort, sometimes actual pain, in these regions. Vomiting is unusual, and the above symptoms tend to pass off within four hours or less after the meal. There is nothing distinctive

in this picture; and the diagnosis of gastrectasis must be made from the objective signs.

These are determined by proving enlargement of the stomach. Normally the greater curvature should be seen above the umbilicus. In gastrectasis, this border reaches down to or even below the umbilicus, while the lesser curvature remains in its normal position. Percussion will show that the gastric resonance reaches below its normal mark; while the presence of splashing, several hours after a meal, is an almost certain sign. Examination by the X-rays, in association with a Bismuth Meal, will help to settle the diagnosis in doubtful cases. It may be necessary to give the patient a "dilating powder" (90 grs. of Tartaric Acid, followed by 120 grs. of Bicarbonate of Soda), before the actual size of the viscus can be demonstrated.

To prove the presence of stagnation of the stomach contents, an evening meal is given composed of some easily recognisable food—*e.g.*, currants—and the organ is washed out on the following morning. Stagnation is uncommon in gastrectasis of atonic origin, and is much more frequently observed in dilatation from obstructive causes.

Perhaps it may be as well to mention, at this point, that the presence of marked stagnation, and its association with vomiting, usually points to the presence of pyloric obstruction, malignant growths, or other organic disease. The symptoms of functional dilatation, as seen in generalised nervous exhaustion, are much more mild, and pass off more quickly than is the case when they result from organic mischief.

Dilatation of the stomach is frequently associated with ptosis of this organ. Here the lesser curvature

can be demonstrated to be below the normal position, and the greater curvature will likewise be seen to be below, usually far below, the umbilicus. When the two conditions are seen conjointly, the symptoms resulting therefrom are of a more aggravated character. The "dropping" of the organ alters its shape and transforms the elliptical to the semi-crescentic, which may make the lowest point of the greater curvature, in bad cases, almost as low as the pubes, while the cardiac and pyloric ends are both below their normal surface marking.

One other condition demands our notice, but mainly from the diagnostic standpoint. *Hour-glass contraction* of the stomach produces symptoms which are akin to those resulting from dilatation and ptosis. For the sake of clearness, the main features of those three conditions are tabulated opposite.

Having established the diagnosis of active dilatation, and excluded organic disease as the cause, we have to proceed to consider what effects this condition may have upon digestion. Firstly, it is obvious that the mechanism of digestion must be interfered with, as the stomach will not be empty from one meal before the next food is taken. This in turn will result in fermentation in the organ, producing flatulence and acid eructations. Appetite will necessarily be affected by the nausea thus engendered, with the result that, sooner or later, malnutrition must ensue. Thus, it is conceivable that a generalised nervous asthenia may be produced by such a sequence, and it is on these grounds that digestive disturbances are regarded by many authorities as causative factors in neurasthenia.

The "confirmed dyspeptic," when there is no mental

element concerned, is frequently found to possess some degree of dilatation, which may well account for part of his symptoms. It must be remembered, how-

	<i>Gastrectasis.</i>	<i>Gastroptosis.</i>	<i>Hour-Glass Contraction.</i>
<i>History.</i>	Previous dyspeptic history.	Frequently no previous symptoms.	History of former ulcers, etc.
<i>Present Symptoms.</i>	Local hunger; pain, frequently relieved by food; discomfort after meals; nausea.	Feeling of weight after meals; occasionally some local discomfort.	Pain and nausea, the former of a "gripping" nature and caused by the food passing from the first pouch to the second.
<i>Objective Features.</i>	Splashing heard many hours after food. Percussion shows greater curvature to be at the level of, or below, the umbilicus. Dilating powders and X-rays with bismuth meal confirms this. "Auscultatory percussion," while it frequently helps in establishing the diagnosis, is not to be relied upon in the absence of other signs. Lesser curvature in normal position.	The normal distance between the two curvatures—about 4 inches—is seen to be unaltered. No splashing or gurgling obtained in pure ptosis. Frequently other abdominal organs displaced— <i>e.g.</i> , kidney. After dilatation the lesser curvature can be seen to be displaced downwards in proportion with the greater.	When stomach is washed out, several ounces less returns— <i>i.e.</i> , is retained in the further pouch; also after washing clean, the stomach tube will often bring back 5 or 6 ounces of fermenting liquid which has been lying in the pyloric compartment. Visible peristalsis seen on stimulating the stomach by massage or flicking the skin. "Paradoxical dilatation" is shown by splashing when the viscus has apparently been washed clean.

ever, that there are many "mental anorexics" who may be suspected of having an atonic stomach, without this really being the case. There is, therefore, a fine

degree of observation required to decide upon the exact condition of the digestive apparatus in each individual case; and often the help of useful diagnostic assets such as dilating powders, the X-rays and so on, will be required before a decision can be arrived at.

In Neurasthenia, moreover, dilatation of the stomach is frequently associated with displacement. It is not a vastly important matter, however, to determine whether one or both are present in any individual case, as, so far as treatment is concerned, the two conditions call for similar remedies. But, when we remember how deleterious the presence of displacements of the important abdominal viscera has been shown to be in many neurasthenic subjects, we shall realise that when definite gastropotosis has well been established, our attention must be turned to ascertaining whether other of the viscera are out of their usual position. Thus, a palpable or floating kidney is a common occurrence in this malady; indeed, as we have already had occasion to observe, some authors lay great stress upon the importance of such nephrotosis in the production of the general asthenia.

There can be little doubt that these disorganisations of digestion play an important part in Neurasthenia. The present writer has often observed that sensory disturbances, vaso-motor abnormalities and psychic troubles often appear to be noticeably prominent in those patients whose digestive apparatus is faulty; and, further, that distinct improvement, if not cure, is brought about when the gastro-intestinal tract has received attention. While it is open for us to argue that such cases exhibit digestive disturbances which result from the same cause as the many other symptoms

present, it is not improbable that at all events some cases owe their general troubles to faults in the generating power of the furnace which should feed the nerve-centres.

Therefore, in association with gastric symptoms we may often find exaggerations of the special features just referred to, and, likewise, when these latter symptoms are a noticeable feature of the general malady, we should be wise to examine with great care the digestive apparatus, the kidneys and the abdominal organs in general.

SUMMARY OF GASTRIC SYMPTOMS.

It will now be clear from what has been said with reference to the gastric symptoms in Neurasthenia, and from the varieties which the physician may expect to meet, that these, although by no means constant, may roughly be divided into four groups, which we have named anorexic, catarrhal, secretive, and atonic.

The evidence at our disposal being of a conflicting nature, it is difficult to express any decided opinion as to the relative frequency with which any of the above disorders are seen in the neurasthenic. While they are sometimes associated, it is possible for one condition to be the sole abnormality in the digestive apparatus, or again, for one variety to lead to others. It is only to be supposed that any single alimentary disorder, if left untreated, will sooner or later result in general disorganisation of the digestion. Thus an uncorrected gastroptosis is often found to have upset the normal mechanism of secretion, impairing appetite and even resulting in an unhealthy condition of the gastric mucosa.

When we consider the general want of tone in the whole body, the deficient innervation and the lowered vitality in general, it is not surprising if one disorganised function soon succeeds in impairing the general mechanism of digestion.

And so we eventually obtain the complete picture as it so often is seen in the out-patient and consulting room. Many such patients are, by the time they seek skilled advice, no longer simple cases, in which the essential features can be plainly discerned, but they are in very truth the "tangled skein" which constitutes the complete disease. The starting-point of this trouble has become buried by the endless subsequences which have been evolved by its prolonged and unchecked action, which makes it difficult (unless one has remembered cases when the cause is simple and its results easy to trace) to appreciate that Neurasthenia can ever be anything but a tangle. In order to avoid coming to this unsatisfactory conclusion, therefore, we must lay due stress upon the importance of studying every feature of the disease.

Any symptom or physical sign which is associated with digestion, then, must be noted and investigated. In cases where ordinary examination is negative and where circumstances still appear to point to some disturbance in this important area, recourse should be had to further diagnostic helps. Analysis of test-meals, chemical investigation of the juices of the stomach, the use of the X-rays, etc., should all be called upon to assist. For it is as unsatisfactory and unscientific to dismiss all cases as of mental origin, where digestion is upset, as it is to refuse to admit that the train may be

as well delayed at the central station, as by an accident on the journey.

If we are careful in our investigations of the stomach and the work it can perform, we shall doubtless find many cases much less resistant to treatment than has hitherto been experienced.

CHAPTER VIII
GASTRO-INTESTINAL SYMPTOMS (*Continued*)

CONSTIPATION.

IN this section we have to discuss the disordered functioning of the bowels, as encountered in Nervous Exhaustion. For our purpose we can divide this subject into two—namely:

1. Intestinal Constipation.
2. Rectal Constipation.

1. *Intestinal Constipation.*

In normal health it is not necessarily pathological if a daily action is not obtained. In some people the bowels only act on alternate days, but do so with the utmost regularity. In others a morning action is expected and usually obtained, but this is not necessarily complete or satisfactory. We regard the condition as pathological when there is a marked retardation in the passage of the intestinal contents, resulting in the delayed arrival of excreta into the pelvic colon and rectum. Constipation has been defined as a condition in which none of the residue of a meal taken eight hours after defæcation is excreted within forty hours.*

In this section we propose to describe the features

* A. F. Hurst, *Index of Differential Diagnosis*, p. 140; edited by H. French.

depending upon intestinal constipation, as opposed to those resulting from retention of the excreta in the pelvi-rectal area.

The normal passage of the fæces through the intestinal canal depends upon the following factors:

1. Involuntary muscular contraction of the bowel, which ensures the passage of the fæces.

2. The position of the bowels. In health they are so placed that the lumen is kept open and the forward passage of the fæces is not hampered by alterations in position of the intestines.

3. Sufficient intestinal contents upon which the muscular walls can exert pressure.

As is well known, the constipation so commonly observed in Neurasthenia may be attributable to alterations in any or all of the above desiderata. Deficiency in normal peristalsis may lead to alteration in the contents of the bowel, which in turn, by reason of the atony which follows, may result in changes in the size and position of the intestines. Thus, in cases in which this sequence can be assumed to be present, the deficient innervation must be regarded as the primary cause, and the other conditions as sequelæ.

Now, it is obvious that in the neurasthenic many factors may produce constipation; or that it may be present in nervous exhaustion as an independent abnormality. We shall, however, confine our description to the variety of constipation which is characteristic of Neurasthenia, and which can, in most cases, be regarded as primarily of this origin.

If we turn for a moment to the consideration of the structure of the intestines we find that two main nerve-plexuses are situated, one between the two layers

of the muscular coats, and the other in the substance of the submucous coat. The intestinal movements are controlled by the vagus and the sympathetic nerves, except in the large intestine, where there is no supply from the vagus. In health, the vagus augments peristalsis while the sympathetic inhibits. These latter nerves also contain vaso-motor fibres, which are largely concerned, of course, with the secretion of the intestinal juices (*e.g.*, succus entericus).

For our purpose, we must realise that a nice balance exists in the alimentary canal between the actions of the two nerve systems, and that stimulation and inhibition, when acting normally, produce tone, and regulate peristalsis.

In intestinal constipation there must needs be some diminution of this tone, even if we cannot regard this as the chief factor in any given case. Intestinal atony (apart from displacement of the bowel) in the early stages, such as we so often see it in Neurasthenia, results in sluggish peristalsis with subsequent accumulation of fæces. This does not necessarily produce constipation, as it may only result in a slow increase in the residual contents of the bowel. Thus, although a frequent action is obtained, even a daily evacuation of the bowel, there is insufficient force behind the fæces to ensure a thorough clearance.

As such a condition increases, it is accompanied by a dilatation of the bowel, which in turn is produced by a thinning of the muscular coats and a consequent loss of tone in the entire bowel wall. When the abdomen is palpated, such patients are discovered to have a loaded colon, which has resulted from a considerable mass of fæces, slowly accumulated over a lengthy

period. The next step is usually displacement downwards so that the transverse colon becomes prolapsed, kinking (or a partial kinking) results, the bowel becomes lengthened, and many other factors ensue, which are dealt with elsewhere.*

Now, what are the clinical signs which point to intestinal atony, and how is it possible to diagnose the condition? When ptosis is established, and the bowel is dropped, the diagnosis of this symptom is not difficult, for we can demonstrate by the X-rays the anatomical conditions present. But in the milder stages, when we suspect that the bowel is not entirely emptying itself, when the general state of health makes us think of a lax intestine, and when the patient is obviously accumulating products of digestion which should be evacuated, how can we confirm our suspicions?

Such a patient will often complain of abdominal discomfort, distension, dyschezia, and the symptoms associated with constipation; or else, in some cases, there are few symptoms to point to the presence of intestinal stasis. There is often, however, a need for laxatives; small motions, sometimes more than one daily, and a feeling that one evacuation does not entirely empty the bowel, are of frequent occurrence. If asked whether the bowels are constipated, many a patient will say: "Oh, no, doctor; I frequently have two or more actions every day." Now, when such a condition is found, the medical man should at once suspect some degree of intestinal derangement, for this means that the bowel has not entirely emptied itself at the first motion, and that one of two conditions is present—namely, either the lower bowel lacks the

* See Arbuthnot Lane, *Chronic Intestinal Stasis*.

propulsive power necessary to entirely empty the bowel at the first attempt, or else the intestine, higher up than the pelvi-rectal portion, has only been able to pass on a proportion of its contents, which were all that had left the body at defæcation. The first of these conditions we shall discuss in the next section, but here we are only concerned with the delayed passage of the excreta in the upper part of the large bowel and the intestine above that.

We should therefore expect such a patient to experience one of two things with regard to actual defæcation, either irregular actions of the bowels (too frequent), or else a more or less degree of costiveness.

The condition which has been referred to as "sheep-dung" motions is often seen in this form of constipation. Small pellets of fæces are passed, either separated or else loosely bound together in a mass, but in either case, hard in consistency, round in shape, and resembling, as their name implies, the characteristic motions of sheep. It is not altogether a good name, as they are not soft, neither are they the colour of the excreta of herbivora, but they are similar in shape. Such a formation of the motions results from a delay, it may be short but a definite delay, in the bowel contents during their passage through the large bowel.

In normal health, the excreta should remain a sufficiently long time in the colon to allow of the partial absorption of fluid, so that the resulting evacuation may be formed. If this time be exceeded, the motion is apt to become hard and scybalous in nature, so, from whatever cause this delay ensues, the result is the same. In the case of an inflamed colon, which may, of course, be found (in fact, it sometimes results from the too

prolonged residence of fæces), the tendency is towards frequent evacuations.

So we must expect either a hard "sheep-dung" excretion, which is usually only evacuated two or three times a week, or else a softer stool, occurring more than once a day, less bulky in quantity and often offensive and even markedly alkaline.

As is only to be expected, another symptom allied to this is intestinal meteorism. The gas normally in the bowels is far surpassed by the amount which may be present in this delayed nervous constipation. It may be freely passed *per rectum*, or it may produce distension without relief. It is, of course, a mild picture of the intestinal paresis which sometimes ensues after operative procedures. One patient of the present writer's described the latter condition as "confined nervous wind," and she always associated such a collection of intestinal gas with her nervous phenomena. The phrase, although not known to scientific students of the nervous system, nevertheless aptly describes what is found in this condition.

Flatus in the bowels is therefore to be expected in intestinal constipation, but it is by no means always found. Many patients, obviously suffering from intestinal delay, show no tendency to the excessive production of flatus.

It is quite obvious, however, that some degree of tolerance can be established to the products of intestinal action, for many people can apparently indulge in extraordinarily infrequent evacuation without feeling any evil effects; but let the man or woman who is accustomed to daily action miss even one day, and the result is usually only too obvious in such signs as

headache, malaise, and loss of appetite. This would appear to show that there is some degree of immunity established to protect the system against self-poisoning, otherwise every person whose bowels refused to act every day would of necessity be a victim to all the diseases which constipation sometimes brings in its train.

Some neurasthenic patients attribute many of their general symptoms to their alimentary tract, while others are not conscious that their bowels are disordered. Apart from subjective signs, which are too well known to describe in detail, we must rely upon our examination to afford us further information as to the presence of some degree of constipation in the neurasthenic.

Although we frequently meet with such symptoms as loss of appetite, a disagreeable taste on waking, morning headache, nausea, indigestion, and general abdominal discomfort, it by no means follows that these are invariably seen in the constipated subject. Neither does it mean that their absence proves that the intestinal tract is in perfect order, for, as we have already said, many patients who are undoubtedly constipated are apparently none the worse for their retained products of digestion.

When we come to examine these patients we often find some small clue which will help us in our preliminary surmise, even if we are unable to discover marked physical signs. When the colon is lax, and peristalsis deficient, the bowel is usually to be felt, on careful palpation, to contain material which is best described by the word "doughy." The sensation imparted to the examining hand varies from a resistant cord which passes under the fingers to a soft yielding mass which

appears to be easily "indented." In some cases the colon, particularly the sigmoid, can be felt, and these parts are frequently discovered to be loaded with more or less stagnant contents. If much meteorism is present, such a loading is difficult to ascertain, and the abdomen presents a protuberant and distended appearance. Sometimes the pelvic colon can be felt to be empty and narrow as it passes over the pelvic brim; but more usually a full bowel is experienced.

Examination of the urine for indicanuria cannot be relied upon as it is by no means always found, even when marked retention of fæces is a notable feature. Often the urine is found to be loaded with urates, and, as is well-known, phosphaturia is frequently seen in association with Neurasthenia.

It is almost impossible to say, in any single case, whether delay in the transmission of the intestinal contents is due to loss of tone in the musculature, to displacement *per se*, or to unsuitable food resulting in insufficient fæcal residue, or to a combination of any or all of these factors. It is probable that some neurasthenics owe their constipation to primary neuro-muscular deficiency, although it is only reasonable to assume that in others it is an independent condition—*i.e.*, not resulting from or dependent upon the general nervous disorganisation. It is an important fact to remember that Neurasthenia frequently improves *pari passu* with improved action of the bowel, and we must therefore always examine with care the condition of the colon in the neurasthenic patients who consult us, and deal with any contents which appear to be abnormal or "residual" in nature.

2. Rectal Constipation.

Under this heading we must discuss those cases of constipation where the upper part of the large bowel appears to be functioning adequately, but where the pelvic colon and rectum do not succeed in evacuating their contents in a satisfactory manner. These cases are often referred to as true examples of *dyschezia*, as they are almost invariably associated with some difficulty in the act of defæcation.

Primarily such patients exhibit a "lax" rectum—the muscles have lost tone and the reflex for expelling the fæces is partially in abeyance. If the rectum be examined on waking in the morning, and any considerable quantity of fæces be found therein (no purgative having been taken the previous day) and an attempt to empty the viscus has resulted in failure, then true rectal constipation can be said to exist. In some cases, however, the motion has failed to pass from the pelvic colon, but has left the intestine above this, so that in reality these cases can neither be called intestinal nor rectal constipation. Pelvic constipation, however, is stated to be uncommon, so we shall pass over this condition and confine our remarks to true dyschezia.

The main symptoms of rectal constipation are as follows: The patient experiences a desire to go to stool, but succeeds in passing no motion. The rectum feels full, and the examining finger comes in contact with a mass of fæces. Or a small motion, usually scybalous in composition, is passed, and if the rectum be then investigated, abundant fæcal material will often be

* Hurst, *Index of Differential Diagnosis of Main Symptoms*, p. 141; edited by H. French.

discovered. Hurst* states that the frequent passage of very small pieces of hard fæces, or the occurrence of pseudo-diarrhœa, are both symptoms suggestive of dyschezia.

In this form of costiveness, then, no delay occurs in the passage of the intestinal contents until they reach the rectum (or, in certain cases, as has already been stated, the pelvic colon). There the motion remains, filling, or partly filling, the rectum. This latter is enlarged—"ballooned"—and atonic, and in severe cases, no form of purgative suffices to remove the fæces save local washes, enemata, or the actual removal of the rectal contents by the finger.

Some help is frequently available in the diagnosis between intestinal and rectal constipation by reference to the usual means employed by the patient to obtain relief. Those patients who derive benefit from a coarse diet, laxatives, and abdominal massage, are probably suffering from atony of the intestine above the sigmoid flexure; while those who depend upon clysters, oil enemata and suppositories are in all likelihood subjects of rectal atony.

In Neurasthenia it is not uncommon to encounter both forms in the same patient; and when we consider the underlying pathology this is scarcely to be wondered at. For the causation is central and will, theoretically, affect the tone of the entire alimentary canal. Practically, however, other factors are concerned, which may result in the atony affecting one portion of the intestine more than another. For instance, if a collec-

* Hurst, *Index of Differential Diagnosis of Main Symptoms*, p. 141, edited by H. French.

tion of fæces is habitually allowed to remain in the rectum, in spite of the desire to defæcate, this will eventually result in the already innervated bowel becoming distended, and will diminish the projecting power normally possessed by the *levator ani* and other rectal muscles. Again, in those patients who exhibit ptosis of the abdominal viscera, we frequently find that intestinal constipation has resulted from the displaced colon, and from the lengthening of this portion of the intestines, which must of necessity cause a weakening and even a thinning of the muscular coats. Sufficient has been said to show that the symptom of constipation when present in the neurasthenic demands careful and thorough investigation. Some cases may demand the administration of a bismuth meal, and the observation of its rate of passage through the large intestine to the pelvic colon and rectum by means of the fluorescent screen. But as the treatment, to which reference will be made in a subsequent chapter, is materially different for the two varieties of constipation, the importance of a correct diagnosis will at once be apparent. Further, as so much of the successful treatment of Neurasthenia depends upon attention to details, and in no part of the system more than this, we shall account time expended in righting the functions of the bowels as well spent.

CHAPTER IX

SENSORY DISTURBANCES

THESE form a large group of symptoms, and, in one form or another, are met with in the majority of neurasthenics. Many of them are closely related to vaso-motor disturbances; indeed, they would appear in part to owe their existence to circulatory disorders.

Hyperæsthesia occurs in irregular distribution, and is quite distinct from the variety characteristic of hysteria. Thus, on careful investigation it can be observed to be present in one arm, or in the extensor surface of one thigh; or again as a localised patch upon the abdominal wall. The hyperæsthesia of the scalp, tenderness along the spinal processes, and indeed many other symptoms—*e.g.*, headache—are all encountered in Neurasthenia.

Closely allied to these we meet with sensory disturbances of a kindred type—namely, surface sensations, prickings, shooting pains, formication, general neuralgic pains, burning sensations, “ lightning ” pains, and undue thermal sensibility. This latter manifests itself by rapid changes in the sensations of bodily cold or warmth, which, in turn, appears to be largely due to the irritable condition in which the general vaso-motor system usually is in Neurasthenia. Thus one hour will find the patient complaining of the cold; the slightest exertion or excitement (or even in some cases no obvious reason) will produce bodily heat which frequently

results in diaphoresis. The examination of such a patient by a medical man frequently produces thermal changes, usually of considerable degree. Thus one patient of the present writer always had to wipe the abdominal skin dry previous to examination, as the act of undressing associated with nervousness of the approaching examination produced *local sweating*. Another patient invariably sweated from the hands when discussing his symptoms—a not uncommon feature.

It is these patients who complain of “a bad circulation”; but they do not necessarily mean that they suffer extremely in the winter, but that the changes their bodily thermal sensations undergo are sudden, quite involuntary, and frequently without any obvious cause. It is in these subjects that morbid flushing and blushing is encountered. While this really is deserving of consideration under a separate heading, on account of its importance and frequency in Neurasthenia, some brief account of this symptom will not be out of place here.

In normal individuals, flushing is encountered as the result of physical or mental stimulation; the direct result being an increased blood-supply to the part. As is well known, bodily exertion increases the colour of the face, neck, arms and hands; while mental shock, emotional distress, the presence of shame, self-consciousness and other psychical occurrences bring increased blood to the face only. Many persons of unsound mind blush as far down as the chest, and Hack Tuke mentions the case of a girl who on examination blushed deeply as far as the umbilicus.

We are concerned here with those cases of morbid

blushing which may be regarded as abnormal, but not characterised by the features seen in the insane. When the neurasthenic blushes, it is frequently of a " patchy " nature, and often is seen to commence in the neck, beneath the mastoid process, or in the space between that bone and the angle of the jaw. From such a commencement it spreads, in an irregular erythematous manner, to the cheek and down the neck. It usually is the result of " nervousness," and is frequently noticed when the patient is recounting his symptoms.

Another variety of morbid blushing is seen in " nerve-storms." In their most aggravated forms these present characteristic features. Probably none of the other neurasthenic symptoms is such a source of distress to the patient as these " storms." They commence with a rush of blood to the cheeks, neck and ears; which is soon followed by sweating, generally observed on the forehead. A fine tremor, not unlike that seen in Graves' disease, often accompanies these phenomena. While such an attack is in progress the patient experiences great mental distress, is obviously upset, and anxious to hide all outward signs of the tumult within him.* No physical pain is ever experienced in these cases, and such a storm results from trivial causes. What is characteristic of their production is that they arise for no *adequate* reason. The blush of shame which is brought to the cheek of the guilty by unexpected discovery has its sufficient *raison d'être*; but these exaggerated blushes arise from an internal stimulus which often has no external origin. While conversing quietly, and free from all nervousness or

* These attacks correspond to the attacks of anxiety (*Angst*) which characterise the " Anxiety Neurosis."

self-consciousness, the patient is overcome by the attack, appears uncomfortable, becomes rapidly red, and small beads of perspiration may break out on the forehead. It is true that such an attack occurs more commonly when some slight stimulus has aroused latent memories; but the most important point of all is, that these storms *can result from the fear that blushes will arise at awkward moments.** Foolish as it may seem (to the uninitiated in these matters it may seem impossible), the fear of blushing is responsible for the majority of these "nerve-storms." The individual may have an interview of some importance to attend; he enters the room with the presentiment that, when awkward questions are asked, or at the most crucial part of the discussion, he will blush and consequently appear foolish; and in due time an important point is raised, or a question is referred to his judgment, and his fear acts as the stimulus which releases the vaso-constriction, which is maintaining tone. The result is a "nerve-storm," accompanied by acute mental distress.

Such a condition as this points to the unstable condition of the vaso-motor mechanism; for in normal health a definite extraneous stimulus is required before outward signs of vaso-dilatation are observed. Whether this stimulus takes physical or mental form, it results in alterations of local blood-supply which are more or less in proportion to the stimulus, and vary according to the temperament of the individual, whether sanguine or lymphatic.

Contrast this with the "nerve-storm" which we have just described. Often no stimulus is recognised, or else one which can only be traced by the individual

* The so-called "Ereutophobia."

himself, but which he realises is out of all proportion to the effects produced. One has only to watch many neurasthenics closely to see the mental stress from which they suffer, of which these "nerve-storms" are only one manifestation. These latter belong, so far as origin is concerned, to the group of phobias. For they depend upon internal stimuli, whose birth is buried in the depths of sub-consciousness, and they make themselves conspicuous as a rule only when the general health is below par. Prolonged attacks of nervous exhaustion are rarely free from some manifestations of this nature.

Such are the "nerve-storms" from which the neurasthenic suffers—principally vaso-motor in origin and without any characteristic physical or mental pain beyond what we have already referred to. We shall have occasion to discuss these in greater detail in another place.

In addition to hyperæsthesiæ, the neurasthenic suffers from paræsthesiæ. These are important because, when at all marked, they are a source of considerable trouble to the patient. They are experienced as numbness, or "wooden feelings" principally in evidence in the lower extremities. Anæsthesiæ are not seen in Neurasthenia.*

In addition to these alterations in cutaneous sensibility, the sufferer from nervous exhaustion is the possessor of what is best described by the phrase: "I am conscious of my inner workings." In normal health, cardiac action (except under sudden or violent

* In the disease which is sometimes differentiated from Neurasthenia under the name "chronic nervous exhaustion" (see Chapter I.), it is said that the main difference is the presence of peripheral analgesia.

exertion), digestion, peristalsis, etc., are performed without any sensations resulting therefrom. Not so with the neurasthenic, for he is frequently conscious of his "inner workings": he feels his heart-beat, and associated with this many other cardiac sensations disturb his equanimity, such as feelings as if his heart is turning on its own axis; or, as if it were gripped in a vice, or, again, as if it were sinking down into his abdomen (the resemblance which these latter feelings bear to the familiar phrase "my heart went into my boots"—as indicative of extreme fear—will be noted); he appears also to feel his stomach "contracting," to feel his bowels as it were "a bag of worms," and to experience the sensation of his bladder slowly filling. Now all these show an undue sensibility of the nervous system, for it requires *undue* stimulus before the man in health is even conscious that he possesses any viscera.

In connection with these "inward sensations" let us listen to what Ballet has to say of them. ". . . Independently of the disorders of superficial sensibility which affect the teguments, neurasthenics exhibit perversions of the sensibility of deep organs which are vague and ill-defined, but none the less very real and very important. Those who live in a state of perfect health never perceive the regular play of their organs; it is not the same with neurasthenics, who are constantly affected by the most diverse internal sensations. The movement of the heart and the arteries, the work of digestion, locomotion, intellectual effort, the complex play of emotional states, all the functions of organic life and the life of relation [the life of relation comprises the functions subserved by the sense organs, the nervous system, and the voluntary muscle, the systems, that is,

that bring a being possessing them into more immediate relation with the outer world*], give rise in them to vague and changeable, but always distressing, impressions—that is to say, their *common sensation* is profoundly disordered. They feel quite strange, quite changed. Thence comes that indefinable feeling of being out of sorts, of which the greater number of these patients complain; thence also without doubt comes, as we shall see later in studying their mental state, their tendency to hypochondria and melancholy.”†

The neurasthenic is essentially the victim of deranged sensation, and Ballet is doubtless right when he attributes the tendency to disorders of the mind to the constant presence of abnormal sense-recognitions.‡ The sufferer in these cases is always “suggestible.” He is the receptor of physical stimuli—the “inner workings”—and their recognition; and of mental stimuli, in the form of auto-suggestion, which are usually of an unhealthy or unsatisfactory nature.

It is scarcely to be wondered at that such patients never experience rest—in the true meaning of the word. For when one set of stimuli is at rest, another becomes active; like the old man and old woman in the weather glass, one appears when the other disappears. That some of the disordered sensibility comes from an initial stimulus of the wrong kind there can be no doubt; and all physicians are familiar with the *cardiac* symptoms which appear in a susceptible patient when he believes his heart to be diseased, or when, by chance, his medical

* Note by Translator.

† *Neurasthenia*, pp. 79-80, by G. Ballet; translated by Campbell Smith.

‡ This means that the mental background which makes up the healthy man's “coenesthesia” is abnormal in the neurasthenic.

attendant has said something which implants the idea that he has heart-disease. Déjérine relates the case of a man who suffered in this way, from being told that his heart was affected, until he developed an attack of eczema, when all his cardiac manifestations disappeared, and were replaced by cutaneous symptoms. Thus should all of us who are called upon to treat Neurasthenia bear in mind the fertile soil which awaits any seeds we may plant, and by our careful discrimination instil those ideas only into the minds of our patients which will bear the right kind of fruit, and scrupulously avoid any chance remark which may pave the way to damaging introspection.

Other cutaneous disturbances of sensation are found in the "goose-flesh" which occurs in health from the stimulus of cold. This horripilation is frequently observed in Neurasthenia apart from cold, and appears to be due to sudden alterations in the blood-supply of the part, by which the pilary system becomes raised. It does not always result from physical causes, neither is any psychical reason invariably apparent; it appears rather to be due to some inward stimulus whose nature is unknown, even to the patient, the only notice of its occurrence being the peculiar sensation which has popularly been designated "flesh creeping." That it is usually in the minds of the laity associated with psychic manifestations of an unpleasant nature is shown by the expression: "I feel as though someone is walking over my grave." Not that it is necessarily always an uncomfortable feeling; for patrons of melodrama welcome it (as Déjérine points out) as indicative of successful acting on the part of the villain.

In Neurasthenia, however, it is rare for any of these

sensations in association with the skin to appear singly. More often we get one phenomenon leading to another; an action being followed by an equally startling reaction. "Goose-flesh" may give way to an attack of sweating; while tingling and formication may succeed the undue activity of the sweat glands.

Formication is another symptom of abnormal cutaneous sensibility, and is a common symptom in Neurasthenia. It may occur on any part of the body—even on the head; and in the latter part proves a particularly distressing symptom. It is even at times met with as a "feeling of insects crawling inside the skull." This is fortunately rare, as, it can be readily understood, such a manifestation is extremely disturbing. A lady who consulted the present writer recently was recovering from an attack of Neurasthenia, and although she had previously had many neurasthenic symptoms, was, at the time of the consultation, only suffering from two—namely, insomnia and cranial formication. On investigation the first of these symptoms was found to owe its origin to the second; and was rapidly cured when the formication was relieved.

It will be seen, therefore, that such sensory manifestations as formication may well lead to serious disturbances of function, which may make the real origin of these latter difficult to prove. Tender spots on the scalp, "pressure areas," and the disturbances associated with the special senses have already been discussed in detail.

To recapitulate, then, the neurasthenic is subject to many and varied changes in sensibility, chief among these being; hyperæsthesia, paræsthesia, and dysæsthesia; hyperidrosis, sweating either as a constant accompaniment of small mental or bodily exertion, or

as part of what are called "nerve-storms"; rapid changes in the cutaneous sensibility; and a consciousness of visceral workings which is not seen in normal health.

VERTIGO.

Neurasthenia is one of the diseases which can claim vertigo as a common symptom. Its causation is in all probability due to central causes, but a certain proportion of cases have their origin in digestive disturbances and in these the attacks invariably make their appearance during the process of digestion, which may be at any time from a few minutes to an hour or two after a meal. In such a case the patient feels as if he is losing his balance, his head seems to swim, he may experience a feeling of blankness and he feels as if he will fall unless he supports himself by holding to a table or chair. While such attacks have some of the characteristics of *Menière's* disease, the individual features are not nearly so severe, neither does the patient usually lose his balance and fall. It is rare to observe diarrhoea and vomiting accompanying the neurasthenic vertigo. But when such attacks as these are present, they are frequently accompanied by other subjective sense disturbances. As an example, when giddiness supervenes, the patient will experience a humming or "thumping" sound in the ears, or a whistling or screeching noise is heard, which is often accompanied by attacks of dizziness. It is not uncommon for a more or less generalised diaphoresis to follow such an attack; and polyuria is also seen as a sequela.

Dizziness, without the other accompaniments of vertigo, when observed in nervous exhaustion, partakes more of the nature of the unsteadiness and ataxy seen

in debilitated persons and convalescents than it does of true vertigo. The man whose head swims when first he rises from a sick-bed, is unable to compensate for the sudden change of posture, and is suffering from the failure of the circulation to adapt itself to the altered condition, rather than from any cerebral or spinal deficiency. And doubtless many cases of neurasthenic vertigo are in reality merely cases of dizziness due to a similar cause.

The neurasthenic is debilitated and weak (so far as the nervous system is concerned), his vaso-motor system is hypersensitive, and is unable to adapt itself readily to sudden calls, neither is it under steady control as it is in normal health. In so far he resembles the convalescent, just as he resembles him in many other ways—*e.g.*, his ready fatigability, his wandering attention, and his thermal sensitiveness.

Whether it be simple dizziness, or whether definite giddiness associated with the usual accompaniments of vertigo, some manifestations of this nature are exceedingly common in Neurasthenia. They can certainly be counted as among the definite symptoms upon which diagnosis may fairly be based, and although not pathognomonic in any feature, are sufficiently characteristic to demand description.

SPECIAL SENSE DISORDERS.

Before proceeding to discuss the disorders of the special senses to which neurasthenics are liable, we must emphasise the following points: Firstly, the sufferer from Neurasthenia does not exhibit the many abnormalities of special senses which are found in the hysteric; secondly, those symptoms from which he does suffer

which may rightly be included under this heading can legitimately be assumed to result from undue fatigability and not from the underlying causes which are active in hysteria; lastly, with the exception of asthenopia, disorders of the special senses are not an important part of the symptomatology of this malady.

With this initial statement, then, we can pass on to a brief survey of the disorders of the special senses in Neurasthenia.

(a) *Vision.*

As opposed to hysteria, where we encounter many and varied abnormalities of vision, Neurasthenia is not characterised by many symptoms referable to vision. Hysteria, on the other hand, with its limitation of the field of vision, its achromatopsia, micropsia, polyopia, etc., offers many items of interest in this connection to the student of functional nerve disease. In Neurasthenia, however, as we have already said, the main feature is the asthenopia. This consists in a weakening of vision, so that the sight is constantly below par, sometimes for months together, with which is associated a ready fatigability. Thus, the neurasthenic will be unable to read for more than a few minutes without suffering from "eye-strain"; and frequent rests are required with the eyes closed to enable him to finish the article or story he is perusing. Again, after reading, it may be only a few lines, the letters appear to run together, and the words become nothing better than a hopeless jumble in which no order or sense is apparent.*

It must be remembered, however, that the mental symptoms from which many neurasthenics suffer

* The so-called "irritable eye" of Neurasthenia.

(*e.g.*, defective concentration or failure of attentive control) often combine with the asthenopia to make continued reading a difficult matter. Therefore we are justified in assuming that part at any rate of the asthenopia is produced by central causes, and part is in reality mental fatigue rather than local neuromuscular asthenia.

The usual sequence is as follows: The patient commences to read, or to do some work which entails the strenuous use of vision; after a very short time, effort is needed to successfully visualise; the next step is a sensation of fatigue in the eyes, aching in the eye-balls, and a "strained" feeling which rapidly becomes worse. At this stage the successful registering of images becomes impossible and the individual has to abandon his task. Another instance in which vision readily tires is that associated with railway journeys. Although many people find that their eyes ache, and their vision becomes clouded if they attempt to look out of the carriage windows at the passing landscape, the neurasthenic often suffers from a total inability to do this even for a short time. Fatigue is at once produced, and the eyes have to be closed until this has passed; and for the rest of the journey the eyes must avoid gazing at the passing panorama.

It should be remembered in passing that even with glasses to correct any defects of vision—*e.g.*, myopia or astigmatism, this neurasthenic asthenopia does not always improve. And it can hardly be expected that it would, for it is not dependent, certainly in the ordinary case, upon organic faults in the ophthalmic apparatus, but rather upon a general fatigue of the central nervous system which affects the vision as a component part.

Certain other phenomena occur in connection with the eye in Neurasthenia. One of these consists in an alteration in the pupil which is fairly constantly seen in this malady, and deserves mention here. We refer to the mydriatic pupil, with its slow contraction to light, to which the present writer has constantly drawn attention.* Possibly this tardy reaction by interfering with successful accommodation, helps to produce asthenopia, in which case we have one reason for the constant presence of eye-strain in Neurasthenia.

Another symptom displayed in the ocular musculature is seen in that flicking of the eyelids which is so troublesome in some patients. While this cannot be described as typical of Neurasthenia, if looked for with care, it will be found to be present in many cases. It is not unlike the symptom popularly known as "live-blood" in its manifestations. It occurs more commonly when the patient is tired or when he has been using his eyes overmuch, and it is a source of great annoyance to the sufferer.

Many patients also suffer from marked congestion of the conjunctiva, and this is more or less permanent, in the sense that it does not vary day by day, as is the case with many forms of "blood-shot eyes." Precisely what its significance is it is somewhat hard to say, as, unless it points to undue cerebral congestion, which can hardly be the case in many neurasthenics, it does not appear to have any important bearing. It frequently improves *pari passu* with the general amelioration of the symptoms, and is not of serious import.

Undoubtedly the most serious abnormality in vision

* See article by Author, *Practitioner*, April, 1913.

present in Neurasthenia is proneness to eye-strain and inability to continue using the eyes for any length of time. This in itself is a serious drawback to any patient who, while suffering from Neurasthenia, is forced to continue his work; for it often entails a change of occupation, as the patient may be unable successfully to continue his work if it necessitates much eye-work.

(b) *Auditory.*

The main feature which is observed in nervous exhaustion in connection with hearing is the extreme sensitiveness to noises which so many patients exhibit. This hyperacousia might almost be said to be characteristic of the malady, so often is it encountered. The slightest noise, voices outside the door of the room in which the patient is sitting, even the sighing of the wind, is magnified by the auditory apparatus into an explosion. Also, many of these patients attribute the insomnia from which they suffer to noises in the house, although these may be only the slightest noises inevitable everywhere. It is curious to note in this connection that some neurasthenics would appear to convert "excessive silence" into noises—*i.e.*, they people the still watches of the night with sounds conjured up by their own irritability. This is hardly tantamount to saying that such noises are pure psychic recalls, as these depend upon former experiences of a like nature; while what we may call the "manufactured noises" are produced, in many cases, for the first time when the central nervous system is drained of its strength.

It is very certain that undue auditory sensitivity is met with in many patients suffering from Neurasthenia. The writer inclines to the opinion that it is

dependent upon the general hypersensitiveness of the entire system and is *not* an undue susceptibility of hearing independent of the general condition.

Abnormal noises heard by neurasthenics have already been referred to, and there is no need to enlarge further upon these here.

Before leaving the subject of auditory abnormalities, it may be well if we state what is meant by the phrase "psychic recalls." Patients suffering from undue sensitiveness of hearing are, in some cases, re-creating the noises of the past, and, to speak metaphorically, are constantly conjuring up bygone sounds which have produced deep effects at the time they impressed themselves upon the ear-drum of the recipient. When the nervous system of the individual becomes below par, these noises seem again to emerge, and take their place as present sounds. Small wonder is it, therefore, that when such a process as this comes into being, the neurasthenic is unable to suffer with equanimity even slight noises which have an actual existence.

With this reference to one form of "psychic recalls" we will leave the auditory symptoms of Neurasthenia.

TASTE AND SMELL.

Again, we must emphasise the great difference between the sense symptoms of hysteria and those seen in Neurasthenia. Patients suffering from the latter malady do not present many alterations in either taste or smell. But one fact is important—namely, that whereas in hysteria it is common to observe hyposensitiveness to odours in general, the neurasthenic is hypersensitive to smells, and possesses a peculiar irritability in this direction. Some patients indeed are

haunted by smells, and can never rid themselves of some particular odour. Many of these partake of the nature of "psychic recalls," in which case they can scarcely be reckoned as undue olfactory sensitiveness.

Nevertheless, many neurasthenic patients present undue sensitiveness to odours and are quickly upset by smells. It does not always follow that the smell is disagreeable—it may, in fact, be pleasant—but there is often found sensitiveness to many or even all strong smells, and not necessarily to certain pungent odours only. Anosmia, which is often observed in hysterical subjects, is not seen in Neurasthenia.

Taste is seldom altered in Neurasthenia. Unlike hysteria, we do not encounter ageusia, neither are perversions of taste characteristic of nervous exhaustion.

RACHIALGIA.

This troublesome manifestation of Neurasthenia is more commonly observed in the so-called "spinal variety" of nervous exhaustion than in the "cerebral." It consists of a distressing sensation, that often does not amount to a pain, which may occur along the entire spinal column, but which is more often localised to some definite region, such as the cervical, thoracic, or sacral. In the latter region it is most frequently encountered, and Charcot refers to it as the "*plaque sacrée*."

Rachialgia may take the form of tender areas, which are extremely sensitive to touch and are the seats of aching, dragging, or boring pains. In one patient of the writer, the entire vertebral column was acutely hypersensitive, and the patient was never able to bear any touch, however light, upon her back; while constant

aching was localised in the lumbo-sacral region. No obvious cause was discovered for this, although it was always aggravated by the approach of the menses. This hypersensitiveness and pain gradually yielded to treatment and disappeared with the subsequent cure of the Neurasthenia. Some authors describe a form of rachialgia which consists in stiffness and pain on movement and effectually prevents active exercise.

This latter variety differs from the former kinds already described in that it is extremely vague, and the patients can seldom accurately localise the seat of the pain. In the former varieties, the sufferer can nearly always place his hand on the tender area, or on the seat of the pain. Such areas are usually quite definite and circumscribed; and the pain, if present, rarely radiates along the areas supplied by the intercostal nerves or towards the abdomen.

In their presentations, these pains and aches are analogous to the cephalalgæ of various kinds which are encountered in Neurasthenia, to which reference has already been made. They are probably not met with so often, nor are they a source of such serious discomfort to the patient as are the various cephalalgæ which, whether as pressure, or as throbbing or as merely feelings of blankness, render life a misery. Rachialgia, moreover, is generally made worse by exercise, and ameliorated by rest in the recumbent position.

Hyperæsthesia has been frequently noticed in association with rachialgia, and often this has been ascertained to exist along the entire spinal column; also in the genito-urinary region and thighs.

CHAPTER X

INSOMNIA

BEFORE discussing the question of Neurasthenic Insomnia, it may be advisable to refer to some of the salient features of normal sleep. For insomnia is one of the most difficult ailments to treat, whether it forms one of the symptoms of Neurasthenia or whether it makes its appearance as an individual symptom. When we consider the manifold causes which, often slight in themselves, lead to a disorganisation of the delicate mechanism of sleep, we must surely admit that such factors must be discovered and dealt with before we suggest remedial measures.

It can no longer be denied that many forms of treatment should be rightly regarded as antidotal to the *effects* of a harmful agent, and not in themselves antidotal *to the agent itself*. For instance, when we prescribe a drug belonging to the narcotic group, we should bear in mind that we are hoping to overcome the results of the activities of an operative cause—*e.g.*, the nerve shock which follows trauma, worries, etc., and that the only treatment which can give satisfactory and lasting benefit will be the removal of the cause itself.

This fact is recognised broadly with reference to all organic disorders of mind and body, but it seems to be disregarded when functional disturbance is under consideration. The reason would appear to be the difficulty

in discovering any cause, or in deciding which of the many abnormalities present is responsible for the resulting condition. It is of the first importance that this fact should be emphasised when discussing insomnia, for it appears to have received singular neglect in the past. Why it should be regarded as rational to prescribe general sedatives (*i.e.*, drugs belonging to the hypnotic class) to a patient suffering from sleeplessness, without taking every precaution to ascertain the cause of this condition, passes comprehension. When we consider the mechanism of normal sleep, and the physiology of the brain in relation to its periodic rests, we are at once struck with the many factors, delicate of construction in themselves, which, when acting harmoniously together, produce sleep. We shall see later how these bear upon the importance of correct diagnosis; the presence of some slight abnormality in the functioning of mind and body, being sometimes sufficient, especially in those individuals predisposed by heredity, to start the habit of disturbed or insufficient sleep.

Sleep is as important as food, and its withdrawal is followed by serious mental and bodily disorganisations. When complete absence of sleep is produced experimentally, certain effects follow, which have been recorded by more than one observer. In one experiment the following effects were noticed in three young men who went without sleep for ninety hours: The body weight increased slightly, the bodily temperature fell, certain excretions—namely those of nitrogen and phosphoric acid—increased, while all the reactions of the body were diminished, with the exception of vision,

the acuteness of which, curiously enough, was increased. In another observation, after a prolonged period of sleeplessness, delusions became a prominent feature, and it required many hours of sleep to recover normal mentality.

The importance of these observations to the clinician lies in their relation to what happens in those patients who, through various causes, have lost the regularity of sleep. When a patient suffers from many symptoms, among them being insomnia, it is often a matter of difficulty to sift the causes from the effects, and to discover which are the primary and which the secondary symptoms. Sleeplessness produces many abnormal features, and care and skill are required to discover these, and to ascertain their bearing upon the general condition. When we realise the physiological facts which face us, and which tell us of the normal mechanism of sleep, and the common causes of insomnia, we find a frequent relation between the many factors in normal sleep, and the common causes which contribute to sleeplessness. Before passing on to the consideration of the classification of Insomnia, let us review in brief the known factors about the production of sleep in the healthy individual.

Many theories have been put forward to account for the production of sleep, among these being the chemical, the nervous, the psychic, etc. It will be at once obvious that a complicated function like sleep must depend on a multiplicity of factors for its production. Let us, therefore, look a little more closely at the conditions which are most favourable for sleep.

First, there must needs be a diminution in the forces

impinging on the central nervous system—*i.e.*, the special senses must be freed from stimulation, and all sensory activity lowered; this, of course, is a voluntary act, and in health can be accomplished at will. It follows that fatigue (up to a point) will diminish the readiness of response of the central nervous system. Secondly, muscular action must be abolished—*i.e.*, complete rest must be present, and by this is meant an absence of movement of the voluntary muscles, and a condition of muscular relaxation, for tension of the musculature will discourage sleep in the same way that muscular activity will. Thirdly, the mind must be at rest, and the cerebral inactivity must be as complete as the cerebellar, for mental activity is as productive of sleeplessness as bodily.

Now, how do these desiderata coincide with the habits of the normal individual? Sleep comes periodically to the human race, and comes after a sufficient interval, during which the vital processes have been active. This is where we see the reason for the chemical theory of sleep, which suggests that certain products are elaborated during activity which have a sedative or soporific effect on the brain. Thus, we feel sleepy after muscular activity, after the ingestion of a heavy meal (apart from the physical alteration produced by the dilatation of the splanchnic vessels), and after brain work. This theory has never been supported by experimental tests, but seems to be supported by ascertained facts. But we can go so far as to say that some, at least, of the phenomena of sleep might easily be accounted for by other equally possible theories, which have, in some instances at any rate, been supported in the laboratory. Many interesting

questions may be raised in connection with the belief that chemical changes are the prime factor in the production of sleep—for example, the assumption that sleep is due to the exhaustion of the intra-molecular oxygen of the cells of the brain or neurons; to an alteration in the dendritic processes, accompanied by a break in the transmission of nerve impulses; or to changes in the neuroglia; all of which possible happenings may be attributed to chemical changes in the blood-supply of the brain.

This brief survey of sleep and its physiology will serve as an introduction to our study of the insomnia of nervous exhaustion.

Much difference of opinion exists among writers upon Neurasthenia, as to the proportion of patients suffering from this malady in whom insomnia is a marked feature. Many authors regard it as a characteristic part of the complaint, and even its most troublesome symptom; while others regard it as of infrequent occurrence and in most cases independent of the main lesion. It would appear that, taking the average of these latter opinions, insomnia is of very variable occurrence, and does not form the main feature of the disease as it is held to do by writers holding the former view. On the other hand, it is a fairly frequent symptom, and often peculiar in its character. Many neurasthenics undoubtedly sleep well; in fact, they often sleep "too well," as they express it; and such cases resemble in an interesting manner the sleep of the "disordered liver," the lithæmic, and of the auto-toxic subject.

What then, if any, can be said to be the characteristics of the Insomnia of the Neurasthenic? To answer this question satisfactorily, we must enumerate several

different although frequently recurring types of sleeplessness.

First and foremost we must consider the sleeplessness which springs from physical causes. It is obvious that certain functional combinations are requisite for the production of sleep, and a dislocation of such combinations by an interference with the interaction of the component parts will be sufficient to produce insomnia, or at all events delayed or imperfect sleep. In presupposing such a syndrome, we are only looking at sleep from its positive side. We are all familiar with the fact that minor bodily causes are capable of producing insomnia, but how seldom do we attempt to delve deeper into the mechanism of normal sleep, and look at those factors, the right working of which is essential for sleep? Thus, over-active peristalsis, hyperchlorhydria, palpitation, hyperpiesis, muscular "tension," and aches and pains, are only some of the many workings whose activities will prevent sleep. So we see that a certain condition of "negative activity" is requisite for sleep; and this is confirmed by the fact that in sleep all bodily energies are temporarily suspended, or lowered. Now, the neurasthenic who, broadly speaking, is the possessor of a lowered activity often exhibits abnormal workings which disturb his general mental and bodily equilibrium. Such a condition as "indigestion," to which the neurasthenic is more liable than the healthy man, or constipation (again a common trouble in these patients), is capable of upsetting the delicate balance of sleep; while inaction as well as overaction is a factor to be reckoned with. In the man who is accustomed to brain-work, the sudden cessation (as when he takes a holiday) is often associated

with a temporary disturbance of sleep; while all are familiar with the insomnia which results from over-work—"I am too tired to sleep," as patients put it.

Thus, although all sleep must be largely a psychic matter and also the result of psychic training, many and often apparently trivial causes of a physical nature will be sufficient to upset this habit. The neurasthenic, as has already been said, possesses many abnormal functionings of a bodily nature, and is so much more liable than the ordinary man to deficient or excessive action of any organ, that his sleep readily becomes upset. This factor will perhaps account for many cases of Neurasthenic Insomnia.

For the sake of convenience the disturbances of sleep may be divided into three forms, according to their time of onset. Thus there is the difficulty of "getting to sleep,"* disturbances of sleep—*e.g.*, night-starts, frequent awakenings, distressing dreams, etc.—and lastly, general insomnia. To be accurate in our nomenclature only the last of these forms really merits the term "sleeplessness," although all three varieties show variations in the degree of sleeplessness.

Dealing firstly with the difficulty in falling asleep, many causes may be at work. The neurasthenic is a forcible example of the eternal duality which pervades all nature; and in this connection as markedly so as in many other neurasthenic phenomena. For the waking and the sleeping hours alternate, and during each certain processes are active and, in normal health, actions of the one state produce results which lead to the successful emergence of the second state. Thus bodily and mental activity leads to rest and uncon-

* The so-called "delayed sleep."

sciousness; while the sleep prepares the system for renewed activity. Now in the neurasthenic delayed sleep is, in the majority of cases, due to a mental cause; the patient's mind is active in an unsatisfactory way; he is unable to concentrate, to remember, or to order his mind in the waking hours, but when he tries to sleep all varieties of phantasmagoria come crowding into his mental vision; the doubts and fears from which he suffers are seen through magnifying lenses; and memories which he has been unable to reproduce during waking hours, and for which he has sought in vain, are thrown on the screen, as it were, and he is forced to gaze at them in the still watches of the night. Such a condition banishes sleep, and may well do so successfully for hours at a time; in some cases even for longer periods.

Again, the habit of "reading oneself to sleep" is productive of delayed sleep, if it ever has to be broken, for the mind accustoms itself to a "fatigue stimulus" from the optic nerve, and will not yield sway to the unconscious until such a stimulus be supplied. Or patients who have for years, owing to their habits or the demands of their work, retired to rest at certain hours, find that where they have to alter these hours, sleep refuses to come at their bidding. *Fear* that sleep will be delayed, either because of recent dysomnia or from the groundless fears of the status neurasthenicus, is a powerful agent in producing this delay in obtaining sleep. Thus, a patient who has had trouble of this nature, from causes which have now ceased to act, will still continue to be awake for hours, it may be, with the fear of sleeplessness in active being. Such a conviction of inability to sleep is indeed a powerful cause

in the production of insomnia, and, albeit there has been a tangible reason for the delayed sleep in the first instance, now no such reason exists.

Medical men are frequently consulted by patients who complain that their sleep is interrupted, broken by starts, or characterised by restlessness. Such sleep is fitful, difficult to obtain, and transitory in nature, producing a jaded mind and an unrefreshed body; and, as the day's work depends so largely upon the first impressions upon waking, fatigue is present in the morning and is apt to continue throughout the day, increasing towards evening.

In some cases this is not true, as the patient's worst time is in the early hours of the morning, and improvement continues as the day passes. But many hours of broken sleep, accompanied by disturbing dreams and restlessness, especially when occurring on consecutive nights, are very liable to take their toll in the already diminished nervous forces of the individual. Patients so suffering are easily disturbed by causes which would be insufficient to disturb the ordinary person. Thus, in all our sleep, certain processes are in action which, taking place by means of our automatic mechanism, leave no mark in our conscious memory, nor do they invade our resting consciousness. If such stimuli become over-active, or should they invade our conscious mind, then sleep is broken and we awake. Thus we may regard such activities as exaggerations of the normal processes, which are in action during sleep, and they only disturb the resting consciousness when they become too powerful. Mental or bodily stimuli can disturb sleep, and this is well shown in many instances familiar to all. The moment when the bladder becomes

sufficiently filled to stimulate the centres of micturition is the moment of waking in those patients who have to void urine once or more in the course of the night. Abnormal intestinal workings may wake the patient; or may produce the lurid picture so well described by the name of "nightmare." In the neurasthenic, disturbed sleep is commoner than real insomnia, because in all probability mental causes are more responsible than physical. Absolute sleeplessness is, of course, seen in nervous exhaustion; but the restless sleep, the delayed sleep, the sleep that refreshes not, or the distressing sleep, is a very usual feature.

Sleep is a characteristically rhythmic procedure, and in health is the result of a certain number of hours of activity. When the nerve-centres have become abnormally fatigued, when the response to stimuli has been lowered, then we should expect changes in the delicate mechanism which governs sleep. The neurasthenic may not be able to do sufficient mental or bodily work to set this mechanism in motion satisfactorily, or, again, he may suffer from bodily disturbances which hamper its working. Thus, the neuropath may be affected in this manner where the man in normal health would resist. The presence of phosphaturia in the neurasthenic might be sufficient to disorganise sleep; or tension of mind or body, or a multitude of other causes, may further upset a system which is already disorganised. But such causes are only exceptionally productive of absolute sleeplessness; rather they are productive of disorganised sleep.

It is perhaps more in connection with neurasthenic patients than with any others that we should eliminate the factor of fear. The fear of sleeping badly, of dis-

turbed nights, of difficulty in getting to sleep, or of distressing dreams, succeeds in creating a psychosis of marked uneasiness in the period when the subject is wooing sleep. This "prehypnoidal" time, when the consciousness is sinking and the deeper parts of the mind call their fancies to the surface, is responsible for a great number of these cases. In proof of this we only have to peruse the literature of Insomnia to appreciate the large number of patients who obviously belong to this class (although many authors have failed to notice this), who have been cured of this habit by altered condition in which to seek sleep, and by the strong suggestion thereby engendered which counteracts this fear. The patient who cannot sleep, and who has his bed moved with gratifying results, may conceivably belong to this class; while possibly many other cures for Insomnia owe their success to this same cause.* In such cases as these, we must always keep this factor in mind; and remember that, if the cause be of this nature, suggestion must play an important part in its removal.†

Complete insomnia is fortunately rare and is only seen very occasionally in Neurasthenia. By "complete

* In India, great faith attaches to the close contiguity of onions to the bedside of the sleepless. The onions are bruised (not broken) and should be placed about a foot from the patient. A Parsee gentleman (a patient of the present writer's) stated that this method was held in high repute in his country. It is probably similar in its action to the well-known efficacy possessed by the potato in rheumatic subjects.

† Déjérine and Gauckler relate the case of a man suffering from insomnia, who was entirely cured when all the remedies which were being utilised for its treatment, and the anxious inquiries of his sister who was nursing him, were removed. The reassurance of his physicians, associated with the removal of all agents which *suggested* to him his insomnia, banished the fear of this condition from his mind.

insomnia " is meant a practically sleepless night, or a succession of such nights. Occasionally such a case is seen, where every conceivable remedy has been tried without success. Such patients usually evidence other marked neurasthenic symptoms, which may have been in existence prior to the sleeplessness. The cause of such a condition is varied; but it is perhaps most frequently observed when prolonged nursing of an invalid, with practically no regular rest (or some similar cause), has lowered the general health and broken the habit of sleep.* This form of insomnia is naturally of great danger to the normal mentality of the patient, and should be vigorously counteracted.

The tension at which such patients live is of the most severe nature, and unless sufficient sleep can be obtained the general nervous condition goes from bad to worse. It is indeed a vicious circle; for the less such a patient sleeps the greater becomes the fear of insomnia, and the worse the neurasthenic symptoms. Nothing the patient can do seems to help in producing

* The present writer recently saw such a case. The patient was a lady who had nursed her husband through a long and trying illness engendered by alcohol and terminating in severe attacks of delirium tremens. This lady had never attempted to sleep until six in the morning, and often this short period of sleep was disturbed and broken. She had therefore lost the habit of sleep, and after her husband's death had had recourse to drugs to produce sleep. These had to be increased and changed from time to time, until she was taking large doses of morphia and cocaine to produce sleep. These drugs were successful for a time, but at last they began to fail in their results, and, at this time, she first consulted the present writer. Needless to say, her nervous system was shattered, and she had a firm conviction that she would never regain her natural sleep. By means of education and careful adjustment of the sleep habit, combined with regulation of her habits and life, the drugs were able to be discontinued and the patient made a satisfactory recovery, sleeping well without any narcotics.

sleep. He first tries sleeping on his back, then on the right side, then the left, then turns the bed round. But so firmly has the insomniac habit become established, that not even this nyctitropism will assist sleep. It is usually necessary in these cases to remove the patient from the home surroundings, to establish new environment, and thus to counteract all the old suggestions which are linked up in the mind of the patient. This and the assurance of the physician that there is no irremovable cause for the sleeplessness, will go a long way towards curing it.

CHAPTER XI

THE OBJECTIVE SIGNS OF NEURASTHENIA

It is unfortunately to the symptoms rather than to the physical signs that we have to look for help in the diagnosis of Neurasthenia. Whatever poverty there may be in the objective signs, however, is more than compensated by the amplitude of the subjective manifestations. But these are only comparable to circumstantial evidence, although we have, in many cases, the power to check the truth of some of these assertions; it is always upon the features we can discover by examination that we place greater reliance.

Many of the symptoms described in the previous chapters, however, can be included among the objective features, although they are more suitably described among the symptoms. Of these, tachycardia is an example; for its presence can be ascertained by examination. Similarly, dermatographia is an objective feature; and the readiness with which urticaria and other skin signs are produced can be proved by observation. The real objective signs, however, are those which the physician can ascertain for himself at his examination, and it is these which we especially wish to describe in this chapter.

First among these aberrations from normal health which can be ascertained is *exaggerated reflexes*; and we mention it first because of its constancy in this malady.

We believe that, in the vast majority of neurasthenics, the tendon reflexes will be found to be exaggerated, brisk, and in a certain proportion of cases multiple. They are occasionally, and it seems only in a very small proportion of patients, diminished; but they are never absent in pure, uncomplicated cases of Neurasthenia. If the knee-jerk is unobtainable, then the case is probably one of organic nerve disease, with which may or may not be associated functional disturbance.

This exaggeration of the patellar response is what might be expected when we realise the highly strung and "nervous" disposition which exists in Neurasthenia. Another feature may sometimes be found in this relation, and this is *ankle-clonus*. It seems important to mention this for fear that its presence might be assumed to indicate organic mischief. It has been known for many years that an ankle-clonus is obtainable in most people when they are thoroughly fatigued, and anybody may test for himself the truth of this conclusion by resting his leg upon the ball of the toe, after a hard day's work. An ankle-clonus will probably ensue.

The *clonus* present in Neurasthenia is presumably of similar pathogenesis, and is directly dependable upon the nervous exhaustion. It is usually slight, and by no means a constant feature. Similarly the reflexes in the arms are exaggerated, and the wrist-jerk and elbow-jerk are easily and briskly obtained; the Achilles-jerk will frequently be found to be increased.

Next in importance to these altered reflexes we should class *tremor*, and chiefly is this noticeable in the eyelids. Many authorities lay great stress upon the existence of tremor, and Tanzi says: "There are two symptoms which may be considered as *objective proofs of neuras-*

thenia ; these are exaggeration of the patellar reflex, and tremor of the eyelids when the eyes are closed."* Tremor of the eyelids, particularly affecting the orbicularis palpebrarum, is universally admitted, we think, to be typical of Neurasthenia; and most authorities would agree in giving it a foremost place in any account of the objective features.

The tremor is also observable in other muscles, and chiefly the orbicularis oris, first interosseous, quadriceps extensor, etc. It is rapid, vibratory, and fine, and is often the response to stimulation—*e.g.*, cold. Again, it is sometimes produced by exertion and excitement, while it is often brought about by indulgence in alcohol, tobacco, or sexual connection. One patient of the writer's can never smoke even a mild cigarette without suffering from tremor of the fingers immediately afterwards. Confirmatory evidence of this particular patient's condition was supplied by the sphygmomanometer, which showed a fall of pressure equal to 10 mm. Hg produced by one cigarette, and this was evidenced on more than one occasion. The patient experienced severe reaction to tobacco, although he had been an excessive smoker prior to the onset of Neurasthenia.

Tremor of this character is also seen in the tongue and hands. It is almost as fine as that present in exophthalmic goitre, and is quite inconstant, usually only present when some stimulus (such as those instanced above) is in action. When seen in a marked degree it may even produce muscular agitation (myokymia). In these cases the tremor commences as "fibrillary" and coarsens until it develops into "muscular agitation."

Exaggeration of the mechanical excitability of the

* *Textbook of Mental Diseases*, Tanzi, p. 543.

muscles and nerves is another significant feature; and this, of course, corresponds with the rapid rise in the contraction-curve under the influence of the faradic current. These factors will give us a partial explanation of the frequency with which tremor is observed in nervous exhaustion; as these in all probability result from the ready response of the neuro-musculature to stimulus, as supplied, for example, by the faradic current.

The *pupils* in Neurasthenia afford us further objective evidence. Although in the majority of neurasthenics they are equal, slight inequality may be present, and this is not infrequently seen. Again, hippus* is sometimes present, but this is not a usual manifestation. Oppenheim asserts that a marked spasmodic dilatation of one pupil may occur, but admits that it is so rare as to make a diagnosis of organic mischief highly probable. He also maintains that the phenomenon of "springing pupil" may sometimes be of neurasthenic nature.†

One sign in association with the pupil, to which reference has already been made, does not seem to have received the attention to which it is entitled. This is that the pupils, which are usually slightly inclined to be large in Neurasthenia, present sluggishness in reaction to the stimulus of light. If a light be brought near the eye there is frequently a perceptible interval before contraction occurs. We believe that this is found in a large number of patients suffering from Neurasthenia, and we therefore regard it as characteristic of this malady.

In the previous chapter we referred at some length

* Tremor of the iris, producing rapid spasmodic alteration in the size of the pupil.

† *Textbook of Nervous Diseases*, p. 1119.

to the gastro-intestinal symptoms of Neurasthenia. These, of course, also present their corresponding physical signs; but as we have already dealt with these in discussing this part of the neurasthenic system, we will only emphasise here the significant signs for which the examiner should look.

Any examination of these patients should include a careful scrutiny of the mouth—the teeth, gums, and tongue receiving attention. The first may show signs of caries, with which may be associated gingivitis or actual *pyorrhœa alveolaris*, while it is more than probable that the tongue will be found to present some abnormal feature. As pyorrhœa is of some frequency in this disorder, and as its incidence is important, we will spend a little time upon its consideration.

For the past twenty years this question has been exciting an ever-increasing interest both in the medical and dental professions. Possibly, owing to the fact that prior to this time little notice had been taken of *pyorrhœa*, it has of late received particular attention, especially from the point of view of radical as opposed to palliative treatment. But there can be little doubt that any sepsis in the mouth is a grave risk, and one which should speedily be insured against by some form of treatment.

The bacteriologists teach us that the commonest germs to find in the mouth, especially numerous in cases where gingivitis or alveolar periostitis is present, are the staphylococci (*albus*, *aureus*, *citreus*, and *fetidus*), *Streptococcus*, *Bacillus pyocyaneus*, *Diplococcus pneumoniae*, *Micrococcus catarrhalis*, and the *Leptothrix buccalis*. Let us see what part these germs take in producing disease, and what connection they have with other parts of the body.

Several facts are of interest in this relation. First, we know from surgical procedures that the presence of sepsis in the mouth is antagonistic to the successful conclusion of operations such as removal of the tongue or maxilla, etc., and that before operating wise surgeons always insist upon the removal of septic tooth-stumps bridges and crowns which might increase the risk of infection. Again, the general effect of any suppurative process in the mouth is often said to be neutralised (so far as systemic absorption is concerned) by the acid juices of the stomach; or, in other words, when saliva tainted with micro-organism, or pus is swallowed the effects are not so serious as might be supposed, on account of the antiseptic power of the gastric juice. This, unfortunately, is by no means true, as will be seen from several known facts.

1. "The mouth is the harbour of many varieties of bacteria which are constantly taken into the stomach during the process of eating. We have long looked on the acids of the stomach as destructive to such bacteria, but Smithies, in a microscopic examination of gastric extracts from 2,406 different individuals with 'stomach complaint' (dyspepsia, indigestion, and the like), showed that, irrespective of the degree of the acidity of such gastric extracts, bacteria were present in 87 per cent.; morphologically, cocci and diplococci were present in 83 per cent.; short and long rods (often of the colon group) in 58 per cent.; typical streptococci and staphylococci in 17 per cent., and *Leptothrix buccalis* in 24 per cent. In fifty-four cultural studies of saliva from 'dyspeptic' patients, streptococci and staphylococci were demonstrated in over 80 per cent., bacilli in 66 per cent., and *L. buccalis* in more than

14 per cent. Comparing these figures, it would appear that the common forms of pus-producing organisms (streptococci and staphylococci) have their proliferation retarded in gastric juice, but that bacilli (often of the colon group), as well as *L. buccalis*, thrive in the stomach."*

2. Some of the cases of gastric ulcer which have been investigated bacteriologically, have been shown to be caused by the organisms so commonly present in the mouth.

3. The general bodily resistance to infection is lowered by the absorption into the system of toxins generated in the mouth, nose, tonsils, and pharynx. The starting-point of these infections may, certainly in the majority of cases, be the mouth; the saliva as it passes over the tonsils infects these; it is also swallowed and acts injuriously upon the gastric mucosa; it is said that many ulcerations of the stomach are conditions in which the mucous membrane is attacked from behind through the blood-stream by micro-organisms which live in the blood, and have a selective action upon these particular areas (Rosenow). From the stomach the next stage is the bile-stream via the portal circulation; the small intestine, the appendix (with its lymphoid tissue), and the colon. These are all infected in turn and we have resulting a condition of mild septicæmia.

So much for a brief survey of the results of infection in the mouth and the adjoining cavities. The close connection between the latter cavities and oral sepsis is too well known to emphasise: when the eyes are affected, the teeth often require attention; the Eusta-

* Mayo, "Mouth Infection as a Source of Systemic Disease," *British Dental Journal*, p. 122.

chian tube carries the infection to the middle ear and so on. We need not labour these points, as they are facts and speak for themselves. But what we are concerned with is, firstly, the state of the mouth, and secondly, what relation this may bear to the general bodily health.

Pyorrhœa alveolaris may be produced by many morbid states. It is now held, I believe, almost universally that the actual disease is produced by constitutional causes, although local sepsis is necessary for its full development. Hecker* maintains that there are eleven varieties of this disease, classified according to the cause producing it. Thus he describes, *inter alia*, "Diabetic," "Infective," "Senile," "Traumatic," and "Gastro-Intestinal Toxæmic" varieties. In the preface to his book he says: "The opinions as to the cause and treatment of pyorrhœa are as diverse at the present time as they were many years ago. The most common belief of the dentists is that the disease is a local process. The author, after careful observation covering a number of years, does not agree with this theory, but believes that the disease is the result of constitutional and exciting causes which lower the vital resistance of the alveolar process, gum and the peridental membrane. . . . As a rule, micro-organisms are present in pyorrhœa, and are held in suspension by the pus. The pus is constantly exuding from around the neck of the tooth at the gum margin, being mixed with the saliva and swallowed. In the act of swallowing a portion of it passes over the tonsils. Some of the organisms contained in the mixture of saliva find lodgment in the crypts of the tonsils. After an indefinite

* *Pyorrhœa Alveolaris*, p. 17.

time they commence to grow, and by their growth inflammation results. As a result of this process the normal resistance of the tonsil is lowered, after which the organisms, in all likelihood, gain ingress into the lymph-stream and thence to the general circulation."

On the other hand, we have to believe that the germs normally present in the saliva require a suitable environment before they can grow and produce inflammatory changes. When the general resistance to infection is lowered is just the time these micro-organisms utilise in which to flourish exceedingly. The changes which result are as follows: the gums become inflamed and gingivitis ensues; the inflammatory process spreads, the periodontal membrane is destroyed, the tooth socket is infected, and the process proceeds until the gum has become partially separated from the neck of the tooth or teeth, and these latter eventually loosen. The further stage of this disease is well recognised; the pus exudes from the gums, and can be squeezed from around the neck of the teeth; the saliva becomes loaded with pus; the breath is offensive, and digestive disturbances may ensue. Other sequelæ, such as joint inflammation (arthritis), lumbago, and various septic infections, may follow.

This is what is seen in many patients, but the picture is, of course, varied according to individual cases. Now, it is only reasonable to suppose that, if such results ensue in most of the organs and humours of the body, the general health can scarcely be expected to be good; that some sign of poisoning will present itself, and indicate that the nervous system has not escaped from the general toxæmia.

Turning now to the examination of the abdomen, the most characteristic sign we encounter is the large and splashing stomach. Reference has already been made to this abnormality, but its importance, both from the diagnostic and therapeutic standpoints, is great.

On palpating the abdomen, the examining hand encounters a lax abdominal wall; while the presence of splashing, gurgling and distension of the umbilical region points to gastric fermentation, possibly associated with atony. Borborygmata, tenderness over the cæcum or sigmoid, and the presence of a loaded bowel, can all be detected by examination.

What has been described as "the most characteristic sign of Neurasthenia" is the throbbing of the abdominal aorta. This may be likewise a symptom, for these patients not infrequently complain of "the beating of their stomachs." It is a very constant feature, and one which will be found on examination in many neurasthenics. On placing the hand on the abdomen above the umbilicus, the forcible beating of the aorta can be plainly felt, giving the impression that the vessel is directly beneath the skin. No explanation of the phenomenon is satisfactory, and it does not only appear in the thin type of patient.

THE VASO-MOTOR SYSTEM

Whatever view we hold as to the rôle played by the vaso-motor system in Neurasthenia, there can be little doubt that the symptoms directly or indirectly attributable to this important structure are exceedingly numerous. Anjel,* who has made important observations on this subject, believes that all the main mani-

* Anjel, *Archiv für Psychol.*, viii. 2.

festations of the disease owe their origin to vaso-motor instability, and his views find support in the experiments of Weber.* The former author is of the opinion that sudden alterations in arterial tone are responsible for the cutaneous and other features; and, in support of this, he maintains that the vaso-motor system as a whole is unstable. This instability can be shown by the sudden changes produced by the ingestion of food, which excite a vaso-motor change; and he has observed that under such stimulation the vaso-motor system is more stable, the reverse being the case during fasting.

There seems little reason to doubt that the irritable weakness of the entire nervous system is shared by that part of it which governs the vascular system: for it is both unstable and weak—it responds too readily to stimulation, and its reaction is frequently delayed and unsatisfactory. This means that after vaso-dilatation the reactionary vaso-constriction is slow and frequently inadequate. It will readily be understood that such a nervous mechanism is highly unsatisfactory and might easily produce many of the symptoms we are about to discuss.

So impressed was Weber by these observations that he proposed to define Neurasthenia as a *vaso-motor neurosis*. But this is, of course, not necessarily the real and primary cause: it is only (and that remains to be proven) a theory which seeks to show that that part of the whole organisation which is most failing in its functions is the vaso-motor.

Weber's hypothesis, however, offers a tempting topic for discussion, especially as it links up mind and body in a common bond. Whatever the real etiology of the disease

* Weber, *Boston Medical Journal*, 1888.

as a whole, if the vaso-motor system is faulty, it stands to reason that neither mind nor body can be at its best. We know that sudden alterations in the pressure at which the blood circulates can produce mental changes, so why should we not anticipate that local alterations may and do produce them also ? We shall have more to say on this subject when discussing the blood-pressure in Neurasthenia. Equally true is it to say that sudden mental changes produce results in the cardio-vascular apparatus which are equally interesting and startling. So we have an inter-relation and an inter-action which need closer study by neurologists.

With these few general remarks upon this subject we will pass on to the discussion of phenomena associated with the vaso-motor system and cutaneous symptoms.

Although some reference has already been made to this subject in the chapters on Symptomatology, we are dealing with phenomena which play so important a part, and are of such vital importance to the satisfactory study of our subject, that we propose to discuss at greater length the symptoms of the vaso-motor system and the skin.

We will pass over the sensory disorders of the skin—hyperæsthesiæ, paræsthesiæ, and local neuralgia, as they have already been fully described (Anjel considers that these all are entirely dependent upon vaso-motor disturbances), and we will deal with the more obvious phenomena namely, sudden vascular constrictions and dilatations, erythematous attacks, local hyperidroses and the like, all of which can be confirmed by examination.

An example of the readiness exhibited by the neurasthenic to the production of erythemata is seen when

such a patient consults a medical man. The blush which may be observed in such circumstances is quite characteristic. It does not always commence upon the face; indeed, it is sometimes first observed upon the neck. It is typically "patchy" in character, and appears like a distorted chessboard. It spreads downwards to the chest, and upwards to the cheek. In some cases it starts upon the cheek. Such an attack may frequently be followed by sweating, local in character, and generally confined to the forehead. It is frequently produced when the patient is nervous, or when his attention is centred upon himself.

In addition to this local "blushing," generalised hyperidrosis is more usual in the neurasthenic and more readily produced than in the normal individual. Many neurasthenics complain of a "rush of blood to the head," of "flushing," and of "going hot all over."* Many patients show evidences of the ease with which urticaria may be produced, and the phenomenon of *dermatographia* is a well-known feature of this complaint.† The *tache cerebrale* which is seen in meningeal affections has its analogue in functional disturbances.

Other manifestations which should be referred to in this section are those belonging to the sweat-glands. Of these, generalised hyperidrosis, localised hyperidrosis, and bromidrosis call for mention in passing; while our

* The frequency with which Ereutophobia is encountered in this malady will be recalled (see Chapter X.). The *phobie de la rougeur* is an exceedingly distressing symptom.

† Oppenheim suggests that the urticaria which is brought on by eating certain foods (*e.g.*, strawberries, eggs, etc.) may also be due to the neuropathic diathesis; but it is possible that anaphylaxis plays a more important rôle in the majority of such cases. Perhaps also there is a closer link than has hitherto been imagined between neuropathic and anaphylactic lesions.

description would not be complete if we omitted all mention of the small ecchymoses which occur fairly frequently in Neurasthenia, sometimes spontaneously.

These latter, however, are less commonly observed than the various forms of blushing. In its most aggravated form, ereutomania is a grave disturbance of function, and one which ranks with the phobias in the distress it causes. But milder forms of this condition are frequently encountered among neurasthenics. The tendency to blush (apart from ereutophobia where the psychic element of fear is the main feature) for trivial causes, and often for no cause at all, is another evidence of vaso-motor irritability. The patient "turns hot"; his skin becomes reddened; his mind becomes confused; and local hyperidrosis often follows. It must be clearly understood that the initial stimulus in such cases is not invariably emotion; so sensitive is the balance of the vaso-motor system that sudden changes of temperature (*e.g.*, the entry into a heated room from the outside air), are quite sufficient to produce changes out of all proportion to those experienced in health.

The antithesis of this is the effect produced by cold, emotional disturbances, etc., when vaso-constriction results. This is usually confined to the extremities; and may take many forms. The limbs become cold the cheeks blanch, horripilation ("goose-flesh") results—and frequently shivering is experienced. We must remember that these manifestations have an additional importance because of the slowness with which the organism returns to its normal condition. To the ordinary human being in health, any of these vaso-motor changes pass practically unnoticed, because the return to the previous state is not delayed; and the

circulation speedily responds to the stimulus which acts as the antidote to the condition. But in Neurasthenia, the irritability produces the sudden changes; and the slowness to react exemplifies the weakness. Thus do we see how this "irritable weakness" pervades the whole domain of nervous exhaustion; the duality which is universal has one example in our present study.

Campbell Smith points out, in his translation of Ballet's *Neurasthenia*, that another sign of lessened vaso-motor control is exaggeration of the effects of posture on the pulse-rate.* This is only one of many signs of lessened vaso-motor control, but it has not received that attention to which it is entitled.

If a neurasthenic patient changes his position when he has walked a few steps, or if he moves his limbs, the pulse is unduly quickened, and is liable to mislead the physician, at a first consultation, into a belief that tachycardia is persistent. In point of fact, the controlling cardio-vascular mechanism is in a highly sensitive condition; and any movements in the neurasthenic are liable to produce a quickened pulse-rate which takes an appreciable time to settle down to the normal rate.

Again, these functional derangements of the normal pulse-rate are sometimes accompanied by disturbances in rhythm, which can be ascertained by examination. There is pain in the præcordium, dyspnœa, which in itself suggests heart-failure, and a rapid and thin pulse. These symptoms are accompanied by a sense of premonition, akin to that experienced in *angina pectoris*. It is to attacks such as these that the name cardiac neurasthenia has been given, in the same way that

* P. 85.

other local symptoms, when marked, have been called by the name of the organ chiefly affected—*e.g.*, *gastric neurasthenia*, *sexual neurasthenia*, etc.

Of similar origin and frequent occurrence are *palpitations*. These are common in this malady, and when not initiated or encouraged by digestive disturbances are part of the irregularity in cardiac action which we have just described. In some instances they are precipitated by emotional causes, but in whatever way they are caused, they are only the conscious perception of irregular cardiac action. *Tachycardia* is believed by some authors to be frequent in nervous exhaustion, but, in the opinion of the present writer, it cannot be said to be invariably encountered in Neurasthenia. When it is present, however, it is characterised by a pulse-rate of anything up to 120 beats a minute, a thin radial pulse, a forcible heart-beat (often accompanied by palpitations), and a tendency to be associated with undue skin warmth, as described in the previous section.

Such a condition as this may be lengthy in duration, and only improves when the general health is ameliorated. It sometimes improves, and improves rapidly when digestive disturbances have received attention, which seems to show the close association between abnormal cardiac action and functional disturbances in the splanchnic region. When it has existed for some months and any degree of indigestion is present, the first step should be the attempted abolition of indigestion and not the exhibition of cardiac tonics. Finally, the possibility of excessive thyroid or adrenal secretion should be remembered.

Slowing of the heart's action, or *bradycardia*, is some-

times encountered, and is also usually seen in association with a "small" pulse. The pulse may fall to 50 or even 40 beats per minute, while the rhythm is not uncommonly altered. Irregularity of the pulse is usually observed when the rate is as low as this, and its significance cannot well be explained, except on the ground of an exaggeration of the normal slow pulse-rate which is possessed by some people. On the other hand, in the course of Neurasthenia, we sometimes encounter a condition of sub-myxœdema to which is readily ascribed the bradycardia.*

A neurasthenic form of angina pectoris is recognised, and is usually grouped among the benignant anginas. There is nothing characteristic about this form of angina, as the symptoms are identical with those observed in the ordinary form.

The only point worth emphasising is this: when consulted with regard to a case of seeming angina pectoris, it is always as well to remember the possibility that it belongs to the neurasthenic variety, and to make a thorough examination to ascertain the exact nature of the attack.

THE BLOOD-PRESSURE IN NEURASTHENIA

In a series of cases in which I kept a careful record of the sphygmomanometric readings, I came to the following conclusions:

1. That Neurasthenia *per se* is always associated with a low blood-pressure.
2. That improvement in the status neurasthenicus coincides with a steady approximation of the sphygmomanometric readings to normal.

* See a case published by the author, *British Medical Journal*, June 20, 1914.

3. That if the blood-pressure was found to be normal, or supernormal in a case of Neurasthenia exhibiting marked asthenia, that this factor depended upon other causes—*e.g.*, chronic nephritis, arterio-sclerosis, etc.

4. That where the blood-pressure was markedly lowered, mental depression, in nearly every case, was present.

5. That many patients improved when adequate support to the splanchnic area was provided, which fact would lead us to believe that a condition of splanchnic atony existed which in some way produced the hypopiesis, or aided in its production.

In a neurasthenic patient suffering from depression associated with a low blood-pressure, it is the rule that temporary improvement in this feature produces a rise in the spirits and an improvement in the physical functions, which would justify us in assuming that undue hypopiesis is incompatible with adequate functioning. The fluctuations in the blood-pressure may be said to correspond (in many cases) with these transitory improvements; and this fact will help to account for the "ups and downs" so commonly encountered in Neurasthenia.

In this view of the condition of the blood-pressure in Neurasthenia, I am supported by Oliver, who says: "According to my observation, the prominent features of the circulation in neurasthenic subjects are a sub-normal reading of the systolic and diastolic pressures, with evidence of splanchnic stasis. There are, however, neurasthenics with vascular changes, and in them the arterial pressures, especially those afforded by the armlet, are raised.*

* *Studies in Blood-Pressure*, by George Oliver, p. 139.

It would seem, from these observations, that hypopiesis is the rule in Neurasthenia, and that when a normal or a raised reading is obtained by the sphygmomanometer, it may fairly be assumed to be dependent upon other causes. It is important, however, in undertaking the routine treatment of neurasthenic patients, to form some idea of what is the average blood-pressure in each particular case. It must be remembered that a blood-pressure lower or higher than the normal (130 mm. Hg), does not of necessity indicate illness, for there must always be a wide margin allowed for personal idiosyncrasy. I have recently had an opportunity of taking a number of readings of individuals in normal health, and I have found sphygmomanometric readings raging from 100 mm. Hg to 150 mm. Hg, without there being any evidences of marked physical abnormalities to account for this wide divergence from the normal.

Allowing, then, for a natural idiosyncrasy in this respect, successive readings in the same individual should enable us to establish a normal; and by comparing the variation in the symptoms we shall be able to see how these correspond with changes in the blood-pressure. It is not uncommon to find a sudden rise of the sphygmomanometric reading when there has been marked improvement in the symptoms; and the reverse is equally true. But in an individual with a permanently raised pressure, we must regard this as the standard for him, and make our observations from this figure and not from the normal figure of 130 mm. Hg. This is a very necessary reservation to make, for in such cases we must realise that if, from some alien cause, the normal blood-pressure in some given case be, let us say, 160 mm. Hg, if Neurasthenia supervenes and the

sphygmomanometric reading falls below that figure, we should wish to see a rise in the reading until the figure stands at the same level as it did previous to the onset of the Neurasthenia, so far as the prognosis of this latter condition is concerned.

A permanent rise in blood-pressure means that the system has adapted itself to the increased pressure, and any reduction in this will mean that profound circulatory disorders may ensue which are similar in nature to those seen in Neurasthenia. Therefore we should bear this fact in mind in dealing with vasodilators and similar circulatory depressants.

We can sum up the physical signs of Neurasthenia as follows:

1. The reflexes are usually exaggerated, but may be diminished. There are often ocular signs present in this disorder.

2. The gastro-intestinal symptoms can be confirmed by examination. The mouth may show the presence of oral sepsis; and the tongue is likely to be furred.

3. The abdomen must be examined for evidences of gastric fermentation or ptosis; the intestines for fermentation, ptosis, or overloading.

4. The vaso-motor system will show many signs of abnormal functioning. The presence of vaso-motor instability, blushing in "patches," dermatographia, etc., tachycardia, or undue acceleration on exertion, are all likely to be encountered.

5. Disorders of sensibility may be discovered upon examination.

CHAPTER XII

THE DIAGNOSIS OF NEURASTHENIA

IN this chapter it is proposed to review the evidence which entitles us to claim that Neurasthenia is a definite disorder, and no mere hotch-potch of symptoms. An attempt will be made to render clearer its accurate diagnosis from diseases resembling it. These can be studied under three headings: its diagnosis from (1) other functional disorders, (2) organic nervous diseases, (3) miscellaneous diseases.

At the outset we have to answer the following questions:

1. Is Neurasthenia a definite clinical entity, or is it merely a convenient label to attach to indefinite common disturbances?
2. Assuming that it is a distinct disorder, what are the characteristics which may be said to establish its existence when found?
3. Can it exist in combination with other abnormal states and still be recognised independently from the symptoms of its companion disease?

In the following pages we shall try to answer these questions by showing that the symptoms and signs of Neurasthenia are sufficiently definite to enable us to claim it as a distinct disorder.

1. THE DIAGNOSIS FROM OTHER FUNCTIONAL DISORDERS.

It may be advisable before commencing this section to remind the reader that the meaning of the term Neurasthenia has undergone considerable changes since its first introduction by Beard. This is largely due to the manner in which subsequent writers have narrowed down its meaning. At the present day this tendency is very marked, and its final meaning, to one school, is narrower than has ever previously been the case. Beard included among its symptoms all the heterogeneous mass of mental aberrations which later writers identified under such names as "Folie de doute," "Monomanias," "Délire de toucher," etc. Beard's original conception of the term included all those symptoms which Janet subsequently defined under the name "Psychasthenia"; and this latter term has, to a great extent, been replaced by the nomenclature of modern psycho-pathology. Thus, the term Neurasthenia has altered its meaning in the process of time, so that we can no longer use it to include the range of abnormalities which its originator signified by the term.

The accompanying diagram is an attempt to show the different meanings which the term has held in different authors' hands. It shows that Beard's Neurasthenia became divided into two, for practical purposes, the physical disturbances remaining "Neurasthenia," while the mental were described as "Psychasthenia." The later writers have again subdivided the symptoms originally included in this latter term, under such names as "obsessional or compulsion neurosis," "anxiety neurosis," etc.

	<i>Beard.</i>	<i>Early French School.</i>	<i>Modern French School.</i>	<i>Psycho- pathology of To-day.</i>
Physical fatigue. Gastro-intestinal disturbances. Headache. Vague pains.	Neurasthenia.	Neurasthenia.	Neurasthenia.	Chronic nervous exhaustion (in middle age) or Neurasthenia (in young adults only).
			Indefinite disturbances.	
Obsessions. Phobias. Psychical deficiencies.		Divided into many separate mental disorders, "Folie de doute," etc.	Psychasthenia	Obsessional or compulsion neurosis.
Anxiety, etc.				Anxiety neurosis.

From the diagnostic standpoint, then, we shall see the modern conception of Neurasthenia includes physical and mental fatigue on exertion, characteristic headache, gastro-intestinal disturbances, and disorders of sensibility. It does *not* include phobias, obsessions, anxiety, or the other mental disturbances which it originally included. Let us now study this conception in relation to Hysteria.

Hysteria is a spasmodic disease which is characterised by sudden outbursts of energy, by temporary loss of self-control, by emotional disturbances, by hemianæsthesiæ, local paralyses, altered sensations, and by its great numerical preponderance in the female sex. Contrast this with Neurasthenia, point by point. Neurasthenia is characterised by great diminution in the nervous forces at the disposal of the individual—*i.e.*, lack of energy; by no definite outbursts or sudden loss of self-control, but rather by a systematised weakness of purpose which is the analogy of the bodily asthenia;

if any alterations in sensibility be present, they are invariably quite irregular, and are never encountered as a hemi- or para-æsthesia; paralysis is not seen; and finally, the greater number of patients are among the male sex.

These critical points alone show how greatly the two differ, and it might be thought that little resemblance, if any, could be found to exist between the two maladies. But it must be remembered that we rarely encounter in isolation typical instances of either complaint, but usually a condition in which well-marked features appear in every degree of complexity and obscurity.

In addition to the points just enumerated, we have yet to draw attention to other features, which may help us in our discrimination. Hysteria may be said to be congenital, or at all events to be dependent upon heredity; whereas Neurasthenia is invariably produced by environment, albeit some individuals are rendered more prone to its development by their inherited disposition.* Again, hysteria is characterised by impairment and perversion of will-power, *but not of intellect*, whereas the sufferer from Neurasthenia is unable successfully to undertake mental work owing to the ready fatigability of his intellectual powers.

Turning now to the study of hypochondriasis and its discrimination from Neurasthenia we are faced with a more difficult problem; not so much with regard to theory, but to practical diagnosis. Hypochondriacal ideas are seen in many cases of Neurasthenia; and it not infrequently happens that they tend to mask the real nature of the malady. Let us therefore study briefly the main features of hypochondriasis.

* Cf. remarks on the genesis of hysteria in *Medical Diseases of the War* (second edition), by A. F. Hurst.

This complaint consists of a morbid introspection, accompanied by a belief that disease exists in some part of the body, albeit this belief may be totally erroneous. The belief in the existence of illness becomes so fixed that it may be regarded as a delusion; although it is not customary so to describe hypochondriacal beliefs, as their possessor is normal in other respects. The disease is progressive in most instances, the morbid belief increases, but it is not usual for suicide to end the career. It is essentially a chronic mental perversion, and is not associated with many of the definite features which characterise Neurasthenia. Apart from the undue attention paid to the organ believed to be diseased, and the exaggerated care of the general health in which hypochondriacs indulge, there is little else in this malady which is worthy of note.

As contrasted with Neurasthenia, however, we must emphasise these features:

1. Asthenia is marked in Neurasthenia, and is not a feature of hypochondriasis.
2. Introspection is common to both.
3. No objective signs are present in hypochondriasis, with the possible exception of those associated with digestion.
4. The hypochondriac will often diagnose his case for the physician, not only by the intense care he takes of himself, but by his intricate knowledge of his physiology, and his wide study of medical textbooks.
5. Dyspepsia is common to both.
6. The two diseases may co-exist.*

* See a case of "Neurasthenia associated with Hypochondriasis," quoted by the author in the *Practitioner*, August, 1915, pp. 241-242.

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TABLE OF DIAGNOSIS (FROM SAVILL'S "NEURASTHENIA")

	<i>Neurasthenia.</i>	<i>Hysteria.</i>	<i>Hypochondriasis.</i>
Sex.	Both sexes almost equally.	Female sex almost exclusively.	Male sex almost exclusively.
Age.	Any age. Young male adults slightly predisposed.	The first actual manifestations always appear before thirty.	Very rare under thirty. Predisposition from thirty to fifty.
Mental Peculiarities.	Intellectual weakness; memory defective; deficient power of attention.	Deficient will-power (<i>i.e.</i> , vacillation, indecision). Want of control over the emotions.	Great determination and perseverance towards one end—viz., cure of an imaginary disease.
Causes.	Overwork; dyspepsia, other causes of malnutrition; auto-toxæmia; traumatic or nervous shock.	A patient is born with the hysterical diathesis. The determining cause of its active manifestation is generally an emotional upset or shock.	Solitary, sedentary life.
Onset and Course.	Starts somewhat gradually and runs a fairly even course.	Hysteria essentially a paroxysmal disorder. All phenomena (healthy or morbid) vary from hour to hour, day to day, and paroxysmal outbreaks are frequent.	Starts very gradually and runs a very even course of most indefinite duration.
Mental Symptoms.	Mental exhaustion and inability to think or study. Inattention. Memory deficient. Restlessness; temper irritable.	Wayward, hard to please, emotional, lazy, restless. No introspection, nor living by rule, nor study of medical works.	Introspective habit. Close study of medical books. Observing all accessible organs and secretions.

	<i>Neurasthenia.</i>	<i>Hysteria.</i>	<i>Hypochondriasis.</i>
	Prostration and sadness. Not equal to the exertion of amusement; sometimes suicidal.	If sad, it is transient (excepting in the male). Fond of gaiety and amusement. Usually joyous, but laughter and tears may alternate with great rapidity. No tendency to suicide.	Habitual sadness. No taste for amusement. But little tendency to suicide.
Somatic and General Symptoms.	Occasional attacks of vertigo; syncope rare, convulsions never. Attacks of flushing and other sensations after meals.	Seizures of different kinds frequently arise. Always flush very readily at any time. Convulsive attacks in 75 per cent. of the cases (Briquet). Syncope very frequent. A great variety of symptoms occurring in paroxysms.	No attacks of any kind.
	Easily tired, easily startled. State of debility and exhaustion. Constant headache. Restlessness, sleeplessness. Long-drawn sighs.	Between the attacks no symptoms usually present. But symptoms referable to the nervous and neuro-muscular system may be present. Thus:	The digestion is often deranged, but in the patient's belief he has some grave disease either of the alimentary tract, abdominal or other viscera.
	Hemianæsthesia never. General hyperæsthesia and dysæsthesia common. Pain in the back and sometimes limbs. Reflexes may be	Hemianæsthesia very common (though may be undiscovered) or other anæsthetic areas. "Ovarie"; tender spots around the	Small and insignificant symptoms, or even normal sensations, are endowed with great and perhaps lethal significance. Patient

	<i>Neurasthenia.</i>	<i>Hysteria.</i>	<i>Hypochondriasis.</i>
	increased or normal.	mammæ and in other positions. Reflexes usually increased. Borborygmi, globus and other spasms of the involuntary muscles are frequent.	tries an endless succession of remedies and doctors, always straining for a cure (which distinguishes hypochondriasis from the hopeless and suicidal tendencies of Neurasthenia and melancholia).
Termination.	Lasts many weeks or months.	The diathesis lasts a lifetime, but the active manifestations come on suddenly, and after lasting a short time usually disappear.	Once established, the condition is very difficult to ameliorate, impossible to eradicate and therefore
	Curable.	Semi-curable.	Incurable.

We need not discuss at greater length the differential diagnosis between these two diseases, as, with the exception of the morbid introspection and dyspepsia, they have few features in common.

There still remain, however, some other morbid conditions which may be classed under the heading of functional neurosis.

Migraine, with its associated optical symptoms, may be easily mistaken for the headache of Neurasthenia. *Petit mal* can only distantly resemble some of the subjective symptoms of nervous exhaustion, and should rarely cause any error in diagnosis. The paroxysmal character of these neuroses should render their nature distinct.

2. DIAGNOSIS FROM ORGANIC NERVE DISEASES.

Certain of the organic nervous diseases (when seen in the early stages) may resemble some cases of Neurasthenia in a remarkable degree. First among these, I would place *disseminated sclerosis*, which has many symptoms in common with nervous exhaustion. This organic nerve disease commences, it will be recalled, with weakness in the legs; and this symptom may precede any other objective signs by some considerable time. When present, then, the nystagmus, the typical "intention" tremor, and the altered speech, settle the diagnosis. The exaggerated reflexes, however, do not help diagnosis, because they are frequently seen in Neurasthenia.

Tabes Dorsalis should only in its early stages give rise to any doubt in the diagnosis. So soon as the patellar reflex is found to be diminished or absent, and the Argyll-Robertson pupil develops, there can be little difficulty in deciding upon the real nature of the disease. But in the early stages, when little may be present in the way of symptoms save sensory disorders, it can well be believed that the condition resembles that found in Neurasthenia.

General Paralysis of the Insane is a disease which may be confounded with almost any neurosis in its early stages, for, although in the examiner's mind the suspicion may arise that his patient may be developing this dread malady, there is frequently no evidence to support this belief. When the peculiar features develop—the mental changes, the pupillary signs, fine tremor, and the alteration in the hand-writing—then there is little real difficulty. It is only in the initial stage of all three

of these diseases that the altered sensation might produce the belief that the case was one of Neurasthenia; but the marked mental changes, once they develop, leave no room for doubt as to the correct diagnosis.

The possibility of organic cerebral disease must always be remembered in every case presenting the neurasthenic headache. The optic discs should always be examined where there is any doubt; and some help may be derived from the reflexes. Where a difference in the reflexes on the two sides of the body is found, great care is required to exclude organic disease of the nervous system.

3. THE DIAGNOSIS FROM MISCELLANEOUS DISEASES.

Apart from those maladies with which we have already dealt, there is one condition which gives rise to a clinical picture remarkably resembling Neurasthenia. We refer to *Lithæmia*.

When a patient is suffering from *Lithæmia*, the symptoms are as follows: The patient sleeps heavily, dreams continually, and wakes unrefreshed; he begins the day tired, and through his working hours he continues to be lethargic and without energy. Particularly is this so after meals; and he invariably has a heavy cephalic sensation (scarcely amounting to a headache), which is most marked, or in some cases only present, after the midday meal. He is always sleepy, and his intellect becomes clouded.

The points of distinction from Neurasthenia are these:

1. The presence of lithates in the urine.
2. The absence of the nervous, highly strung temperament which characterises Neurasthenia.
3. The presence of somnolence instead of insomnia.

4. Its more recent onset and shorter duration.
5. Its ready amenability to treatment; and the rapidity with which changes of diet affect its manifestations.
6. The absence of the altered sensations which are found in Neurasthenia.

Syphilis can usually be distinguished by the aid of blood examination, by the history, and by distinguishing signs of the particular form present. *Lead-poisoning*, while it frequently exhibits changes in the character and habits which are neurasthenoid in nature, should present no difficulty when we can detect wrist-drop, the blue line on the gums, and traces of lead in the urine. Similarly, *malarial and other hæmic* poisons must be distinguished by laboratory examination.

Chronic Alcoholism not infrequently produces changes which closely resemble Neurasthenia; or in some cases Neurasthenia has supervened upon the original condition. The principal points of resemblance are general debility, transitory pains, and dyspepsia; but the vomiting is in the mornings, the liver is frequently enlarged, and the knee-jerks are often diminished in chronic alcoholism.

The onset of *Tuberculosis* is usually characterised by languor and weakness; and in any adolescent showing these signs, no diagnosis of Neurasthenia should be made until tubercle has been absolutely excluded. The writer has more than once encountered such an error which has had serious consequences for the patient. But if the temperature chart is studied, and the family history, personal appearance, condition of lungs, brain, and joints carefully investigated, and, if necessary, cutaneous reactions with tuberculin undertaken, the risk of error should be diminished.

Other common diseases associated with wasting—*e.g.*, *carcinoma*, *diabetes*, *exophthalmic goitre*, *Addison's disease*, and *chronic nephritis*—bear at some stage of their development a resemblance to Neurasthenia; they all exhibit, to a certain extent, a debility not unlike that seen in this latter malady, and may all be complicated with Neurasthenia. Such cases should receive careful study and frequent observation to ensure an exact understanding of their nature.

* * * * *

This brief review of the diseases which may be confused with Neurasthenia leads us to the attempt to answer the question with which this chapter opened—namely, can Neurasthenia justly be regarded as a separate clinical disorder? We claim that it can; if only that the cardinal symptoms and signs are so constantly associated that they form as certain a correlate as those of any other well-recognised disease. The presence of undue fatigue, typical headache, digestive disturbances, and sensory abnormalities, points to the presence of this disorder. Any of these symptoms may be present singly, and may owe its existence to some underlying cause in no way related to Neurasthenia; but the combination of these symptoms (with the less constant ones already enumerated) is sufficient to warrant us in making the diagnosis of Neurasthenia.

PART II.—TREATMENT

CHAPTER I

GENERAL VIEWS AS TO TREATMENT

IN this part of our work we propose to study the treatment of nervous exhaustion from every available standpoint. Indeed, we can hardly with consistency put forward any given method of treatment as the one and only successful therapy for Neurasthenia, when we realise that in some cases it requires every means known to science and general hygiene to effect improvement. Careful regulation of the hours of work, recreation, and rest; adequate sleep; regulation of the important functions of mastication, deglutition, digestion, assimilation, absorption, and excretion—these should be our first care in treating any patient suffering from nervous exhaustion. Add to this the personal endeavour of the physician to promote a normal state of the mind—a condition ensuring, so far as is possible, that the psychological stimuli generated in the mind shall help rather than hinder and co-operate rather than antagonise the bodily workings—and we have the broad outlines of initial treatment.

When we come to consider further therapy, we are bound to pay our tributes to the ingenuity with which modern medical science has endeavoured to supply

methods which may serve to counteract morbid processes, to stimulate nervous metabolism, and to take temporarily the place of the healthful impulses which have been inhibited by the malady and its causative factors. Diet has been studied with a view to furnishing those elements richest in the substances required by the central nervous system; electricity and massage have been adapted to its treatment; and a careful study of the methods which have been utilised for countless centuries, albeit with no certain knowledge of their workings and often in ignorance of their nature, has given us "Psycho-Therapy." This, which is among the oldest of all therapeutic measures, was practised in the temples of Asklepios, and formed some part in the miracles of "incubation," has at last been included in our armamentarium, and has received that careful analytical study which is essential to all treatment that essays to be scientific in its spirit and empirical in its methods.

The empirical method gives our medical knowledge its treasure-house of facts. Rational study of cause and effect produces our reasoned therapeutics. No system of healing, however, which omits the personal equation of the patient can possibly succeed *in toto*. The day has long since passed when we prescribed ammonium carbonate for every case of bronchitis, and administered iron and arsenic to the pale of face. We now treat the patient as an individual, and not the disease *per se*: this latter may safely be left to die a natural death when the individual host has "put his house in order." In other words, much of our treatment aims at increasing the patient's own power of resistance to disease, rather than at endeavouring to cure the illness though we damage the patient in the process.

Suggestion in some guise has, it is needless to say, been always recognised as a curative agent, and much of the medicine prescribed in bygone years has carried with it the earnest hope and belief in its intrinsic powers with which the prescriber sent it on its way. So great is the faith in medicines of all kinds, that the uneducated usually insist "on something to drink and something to rub in"; and this faith helps towards a cure as truly as the scepticism of the fashionably inclined hinders it.

Another factor which we should do well to recall in this connection is that in the *vis medicatrix naturæ* chiefly lies the hope of recovery in every form of disease. The rôle, therefore, of the physician should consist in being a guide and a help to this natural process, rather than an overpowering oppressor to the disease—and often to the patient too. Two classes of patients exist—the one who intends to get well at all costs, and consults his medical adviser with a view to ascertaining the shortest course to health, and has every intention of following his advice to the letter, and the other who seeks advice but discredits it. The former invariably recovers, and rapidly too, from all curable lesions: the latter only serves to keep his malady active by the doubts and fears that beset his mind.

So we see that, while the part which the physician should play in any disease demands personal influence and tact, the rôle of the patient is equally important. But when the physician has to deal with a patient of the second kind, how should he proceed? It is obvious that the shortcomings of the patient must be overcome by excessive zeal and skill on the part of the doctor if this patient is to have as good a chance of speedy recovery as the first class of patient. He must gain

ascendency over the entire system of his patient—mind and body must be under his control; not masterfully, so as to cause atrophy of his patient's will, but tactfully, withal firmly, must he guide the reason and instincts of the mind to co-operate with the physical forces to raise the resistance to disease in general, and the malady from which his patients suffer in particular.

Liébault was wont to say: "*Il faut dominer vos malades,*" and more cures resulted perhaps, from the practice of this eminent man than from the practice of any other physician of the nineteenth century. It was not that his knowledge of drugs was necessarily vast: neither had he at his command all the resources of the laboratory—the vaccines, serums, and analyses—which have since been developed: electricity had not yet come to be at all widely utilised for medical purposes, and medical massage was in its infancy. But Liébault understood that he must treat the individual and not the disease, and in this lies the secret of success in therapeutics, more so perhaps in Neurasthenia and allied neuroses than in other ailments, but nevertheless to a large extent in all. It matters little whether he utilised hypnotic suggestion, or waking suggestion, or even whether the pharmacopœia aided him in his treatment: he cured patients by his knowledge of human nature combined with his understanding of the art as well as the science of medical practice.

When we come to apply a general principle such as this to a particular instance such as Neurasthenia, what do we find? If it is true for disease in general, it is doubly, nay, a thousand times more true for nervous exhaustion, because in this peculiar disease the patient can rely less upon his own judgment (and he comes to

realise this), than in almost any other disease. He therefore seeks someone in whom to place his trust, and his natural protector and guide is his physician. To quote Ballet's apt phrase: "The bonds which render stable the synthesis of his ego are loosened," and the medical adviser has to adjust them with no quavering hand. His confidence and strength must support and encourage his patient, and the latter must feel that, for the nonce, the guiding hand is his physician's and not his own, and he must trust this hand to steer him back to health. His symptoms, which by their intangibility worry him, must be explained to him, his weaknesses must be attributed to their real cause, and not permitted to continue their ravages under a false flag, and judicious explanation must accompany encouraging advice.

The neurasthenic should never be allowed to despise himself for suffering from "nerves," to cry aloud at his unmanly ailment, and to struggle in vain against he knows not what. It should be explained to him that there are two factors in the struggle: the first is his own latent powers, the second is the guiding advice of his physician. The second will direct the first into fruitful paths, so that no strength is wasted in badly organised struggles against an invisible foe, and added weakness is not produced by useless endeavours to conquer one feature of the disease, instead of tackling the underlying canker.

Many patients fail to realise two other factors—namely: first, that mental weakness can be produced by physical causes; secondly, that once such a condition has been established it needs mental effort, *as well as the antidote to the physical cause*, to restore the organism to the normal. In other words, some patients rely

wholly upon mental struggle, and so only increase their fatigue of mind and body, while others expect all the work to be done by the doctor. Neither course is correct, and neither will produce results by itself in the large majority of cases. Co-operation between the medical adviser and the patient is essential to success, but it is the medical adviser who must arrange such co-operation, and see that it is carried into effect.

Whether the will is markedly weakened or not in any given case of Neurasthenia, recovery is likely to be speedy if the reins are held by the doctor and not by the patient. The very freedom from making decisions, from arranging his business and household affairs, and the removal from home ties, "takes a weight off his mind." It is almost entirely for this reason that the success attending the "Weir Mitchell" treatment has been so great; although the diet, massage, and seclusion are all no doubt conducive to health, and are in any case vehicles of useful suggestions.

So delicately does the nervous system respond to stimuli when exhaustion has absorbed its reserves, that the slightest jar, the smallest worry, causes mental perturbation, and, it follows, physical disturbance. Relations and friends rarely realise this: indeed, they seldom take the trouble to differentiate between "*maladie imaginaire*" and Neurasthenia. This latter fact alone causes intense distress to the unfortunate sufferers, for they feel that they are misunderstood, regarded as "neurotics," and are considered a nuisance in their domestic circle.

Now, removal to a nursing home or a similar institution, with partial or complete seclusion, with rest to the mind and body, hyper-alimentation, and adequate

trained companionship, will effect as much by its mental as it will by its physical properties. For this reason (if no other were available), there is much to say in favour of such a régime.

Weir Mitchell's treatment by rest, overfeeding, and seclusion may be regarded as the exact antithesis of the process which has, in many instances, produced the disease. As in this disorder the effects of mental strain, increased pressure of work, the rush of cities, hurried meals and the general turmoil of society, are so often found, it is only rational to assume that placing the patient in exactly opposite circumstances will help to restore the normal balance of his organic well-being. And, indeed, in many cases this happens: partly, in all probability, because of the factors mentioned in the preceding paragraph, and partly on account of the entire avoidance of worry which such a treatment offers. We shall have occasion to refer to this method in another place.

Once, therefore, Neurasthenia has been established, it is necessary to have recourse to technical skill in its treatment, for hygienic measures are insufficient (in any but the mildest cases) to combat the malady. Physical therapeutics have made strides coincidently with psycho-therapeutics, and we now realise that something more than symptomatic treatment is necessary to re-establish health. Where the cause of disease is evident, the method of cure is simple, but where the underlying pathology is as vague as it is in this disease, the general treatment has often to be largely tentative, contenting itself with enforced hygiene, symptomatic remedies and the like. And it must be remembered that each troublesome symptom removed or counter-

acted banishes one source of peripheral malstimulation and this fact alone would be sufficient defence of symptomatic therapeutics.

These in themselves, however, are usually inadequate, and always empirical in their action. What is of palmary importance is that the disease as a whole must be treated *pari passu* with the particular symptom which the patient himself craves to have cured. If headache is his main trouble, and we find on examination any morbid process in action (however little this seems to bear upon the symptom complained of), it is our duty to explain this and promptly institute adequate treatment. In a disease such as this, any pathological condition, however remote, may bear upon the etiology, and as such should not be allowed to continue unchecked. Were we able, in every case, to ascertain the initial cause and the underlying pathology, symptomatic treatment would have little claim upon our time. As it is, however, we find that the line of least resistance runs in the direction of a treatment of the confessed symptoms, at any rate, at first; and there can be little to censure in such therapy, provided we always bear in mind that the main condition requires constant investigation and adequate treatment.

Among modes of physical treatment which are in use nowadays are diet, massage, and electricity; climatic conditions also are to be taken into account. Each of these agents has its field of usefulness, and every one of them bears its quota of suggestions towards health. Some authorities maintain that the main utility of such methods is from their psycho-therapeutic standpoint. Moëbius believes that four-fifths of the successes which result from electricity are due to the

suggestive influences appertaining thereto. Without admitting this, we are bound to say that the administration of such a treatment as static insulation, let us say, conduces to belief in the complicated apparatus involved, and consequently predisposes the patient to reap benefit—namely, from *expectant attention*. It seems impossible to successfully apportion exact credit to any given treatment, for we are working with vital material, and there exists no standard upon which to form a just estimate. Nor does it seem absolutely necessary to do so, provided we gain, by experience or otherwise, sufficient knowledge of which morbid condition requires which treatment, and how to cure most quickly our patients.

Electricity, however, may justly claim many successes in the treatment of nervous exhaustion, either by the impression it makes upon the imagination or the actual changes which it produces on the system. Such treatment as is administered by means of high-potential currents is without doubt extremely beneficial in states of nervous anxiety (the “highly strung” condition, so familiar to novelists), yet we know little of its action on the human body. Galvanisation, faradisation, electro vibration, and neuro-electricity, all have their fields of usefulness, but we know little about their physiological action, or of their effect on pathological conditions.

Now, electricity, either alone or combined with other remedies, is becoming more and more popular with those entrusted with the care of neurasthenics. In England, we have permitted the therapeutic use of this valuable agent to fall into the hands of charlatans and quacks, whose sole object is the extortion of money from people

whose warped judgment and earnest desire for health preclude them from seeing the real nature of the men to whom they turn with a credulity which is pathetic. The power of the Legislature should make illegal the practice of medicine in any form by unqualified practitioners, and it is earnestly to be hoped that some steps will be taken to prevent such a valuable agent as electricity from being brought into disrepute. Similarly, massage has likewise suffered from commercial Shylocks, and has caused many people to look askance at massage as a form of treatment.

Despite these disadvantages, however, physical therapeutics play a very valuable part in the treatment of Neurasthenia, and we should be handicapped without their aid. Among them we must include drugs, although here again we should define what we include in this term. For some "drugs" are foods, and the wise physician prescribes such forms where possible, and does not rely unduly upon the other varieties. The tendency in the past has been towards the rather undue administration of sedatives such as the bromides; although possibly it has not been realised that their general depressant effect has not been to the good in the long run. Now, the pendulum has swung the other way: we prefer to dispense with bromides (where possible) and achieve our object, that of quieting restlessness, by psychotherapy, by active movements, passive movements, re-education, and the like: and we regard manipulation of the intestinal tract as preferable to irritating purges. Such examples as these show that modern therapy, with its many varieties, has enabled the treatment of Neurasthenia to be conducted upon more rational lines than had been previously customary.

Having instituted the initial treatment, then, in any given case, we can consider whether subsidiary treatment is required, and, if so, of what nature. If exhaustion of body is accompanied by digestive disturbances, constipation, and the like, we may advise massage (general and local), with a view to replacing the active exercise which adds to exhaustion, and giving a local stimulus to the alimentary canal. On the other hand, we now possess psycho-therapeutic methods of treatment which are of the greatest value in the treatment of this disorder. These will be considered in a subsequent chapter.

It will be seen from what has already been said that no golden rule can be formulated for the treatment of Neurasthenia, and, with one exception, no two cases will call for exactly similar treatment. This exception is general hygiene: this must be instituted in every case. The patient's method of life should be minutely examined, his habits enquired into, and a general survey made from the sum total of his appearance, history, mode of life, occupation, temperament, and symptoms. From this the physician will be guided as to the probable causation of the disease, and will be able to form his judgment as to the initial treatment.

CHAPTER II

THE GENERAL HYGIENE OF THE NEURASTHENIC

IN the previous chapter we briefly referred to general hygiene as being the first and most important part of the initial treatment of Neurasthenia; and we propose here to discuss this statement in a little more detail. And we must be pardoned if we once more recapitulate what has already been said, for, so important do we deem the subject, that we wish to discuss every detail, to weigh the relative methods of treatment, and to pay due regard to *minutiæ*, even at the risk of being considered tedious. Success in the treatment of nervous exhaustion can only be obtained by the greatest care and patience, and nothing is too trivial in the patient's history, no small physical sign too trifling, to be noticed and preserved for reference and comparison with other features. This is equally true when we consider treatment: we should respect the emotions and tastes of our patients; we should realise how easily small things jar on the neurasthenic; in short, we should place him in the best possible position to undertake special treatment, by attending to the small symptoms which, when counteracted, will serve to pave the way for the first step.

NEURASTHENIA AND URBAN LIFE

General hygiene comprises such details, and consists in enforcing a healthy mode of life, with which the

neurasthenic is often unfamiliar. In modern life, moreover, health has often to be sacrificed to the needs of the moment, and if a business engagement and a meal clash in time, it is the meal which gives way to the appointment. Again, to refer briefly to a common occurrence, constipation is often initiated by postponing the call of nature until a more convenient time, and all physicians agree that the morning evacuation should be regularly attempted, and on no account should be delayed, as the risk of breaking the habit by repeated procrastination is serious. For in this way there arises a gradually increasing sluggishness in the action of the bowels, with its sequelæ: the bowel loses tone, the rectum becomes "ballooned," and constipation, of an atonic nature, is established. And all because one of the first principles of general hygiene has been neglected.

Indigestion from irregular or hurried meals, and constipation from neglecting to empty the bowel when the inclination is present, are only two of the many evils which owe their origin to a studied neglect of the laws of health. Lack of oxygenation of the blood, stasis of the lymph-stream, congestion of the liver and stagnation of the bile, are the immediate result of an indoor existence. From this comes pallor of the face, and secondary anæmia. The blood becomes impure, the hæmoglobin content is reduced, the phagocytic power of the leucocytes is diminished, and the nervous system starved for want of pure and sufficient blood. Small wonder is it, then, that the functions of mind and body suffer, and the nervous system becomes exhausted.

City life is composed of habits such as these, and city life breeds Neurasthenia. The relation of Neurasthenia to

the violation of hygiene is too obvious to need emphasis. But when we consider how many neurasthenics may be said to lead lives in which the factors just mentioned play a leading part, are we not justified in insisting upon the re-establishing of normal hygienic principles before we resort to artificial therapeutics, however beneficial these may be in themselves? The fact must be emphasised that every patient should be treated as an individual and not as a member of a group: neither can we insist upon the resumption of activities immediately we have made the diagnosis. Many cases require a very gradual resumption of normal life, and exercise should be prescribed with the same care as drugs. The end at which we should aim in treating our patient is this: the education or the re-education of the patient in a practical knowledge of the laws of health, the correction of any error in the working of his organism, and the inculcation of such rudimentary truths as, that it is better to be healthy than wealthy. In this way the patient will be guided on the road to health until he reaches the stage when he can care for himself—in other words, when his education has been completed; then his medical treatment should cease, as we should scrupulously avoid any tendency towards encouraging hypochondriacal introspection. General hygiene is, therefore, the first and by far the most important step towards the attainment of the ideal of the sound mind in the sound body.

Under this heading, therefore, we shall discuss those common phases of existence, the right ordering of which is included in the phrase "general hygiene." Those functions which are commonly disordered in Neurasthenia will receive more thorough discussion.

SLEEP

Sleep is the natural restorer of vitality—the agent which renews bodily vigour when this has been expended in physical or mental toil. The amount of sleep that is necessary for health varies, many people apparently requiring relatively short hours of repose, while others demand a long night's rest, if their health is not to suffer.

Several points need emphasis in discussing the amount of sleep required by the neurasthenic. First, there is the personal factor—the amount of sleep which has been requisite during health—*not* the amount which has sufficed in the era immediately preceding breakdown. Secondly, the nature of the sleep, whether broken or deep; whether accompanied by dreams, and if so their character; and whether sleep is obtained after a long period of wakefulness, or whether the patient falls asleep with ease. Thirdly, and perhaps as important as any of these points, is the sleep refreshing and does the patient awake in the morning feeling the better for his night's rest?

In health the time required for rest varies from six to nine hours: in extreme cases and during childhood longer hours of sleep are requisite, while some individuals appear to be satisfied by five or even four hours a night. But there can be little doubt that the old adage which says "one hour before midnight is worth two after," is very true, and the explanation of this is not far to seek. If a person retires to rest, say twelve hours after he has arisen in the morning, he is tired perhaps, but not overtired: if he postpones the cessation of conscious activity until after midnight he may have induced over-fatigue, for which even an extra hour in

the morning is unable to compensate. This over-fatigue may even prevent sleep, inasmuch as it is liable to induce a restlessness which effectually keeps at arm's length that mental and physical calm which is the precursor of unconsciousness.

The training of the child's functions is the main purpose of early education; and the main purpose of re-education is to bring back to their normal working those functions which have been perverted. Thus, the man who has accustomed himself to late hours, and is unwilling to make it his rule to retire to bed, let us say, at ten o'clock, should be persuaded to alter his habits so that he becomes accustomed to go to bed early, and to get to sleep well before midnight. The present writer is convinced that the insistence on early hours is an important factor in the general hygiene of the neurasthenic; and if it is explained to the patient how necessary it is that sleep should come before his nervous system is subjected to the strain of over-fatigue, in most cases, no doubt, he will be prepared to adapt himself to whatever alteration in his mode of life may be necessary.

Many people seem to be able to retain their health even with persistent late hours, but professional people whose occupations entail late hours—*e.g.*, actors—are examples of the result of the strain, for their profession entails severe and exhaustive drafts on their nerve-strength. In this instance, however, the late hours at which most actors retire is only a part of the problem presented to the doctor for solution, as we have to reckon with the emotional nature of their work, and indeed with the peculiar characteristics of the artistic temperament as a whole.

If, sleep is consistently of a broken nature, so that a

restful night's sleep is a rare occurrence, resort may be had to simple devices to encourage sleep. Thus the position of the bed may be changed, the room may be darkened and orders given that the patient is not to be disturbed until he rings, and the patient himself instructed to practise muscle-relaxation to encourage mental quietude, with a view of placing himself in the best possible circumstances in which to woo sleep. Again, he should avoid all excitement at night: he should leave his letters unopened until the morning, and should be encouraged with the assurance that sleep is almost entirely a matter of habit, and that the habit will soon be restored if he will only persevere along the lines indicated.

A word about relaxation before leaving this subject. Many nervous patients unknowingly prevent sleep by the muscular tension which is often produced by the exciting and disturbing thoughts which crowd their brains at nightfall. The best cure for this is to teach these patients relaxation exercises, and to insist upon their performance; to urge them to make the effort to control exciting thoughts, to retire to rest with their minds fixed upon some pleasant but calm prospect, and to banish disturbing thoughts so soon as they make their presence known. This latter is often a difficult matter, but, nevertheless, control comes with practice, and, as it is frequently the presence of disturbing thoughts and feelings which prevents sleep, we cannot emphasise too strongly the importance of removing such thoughts and feelings by the patient's own initiative. Once the mechanism preventing sleep has been explained to him, in most cases he will readily endeavour to master it, and in all probability will succeed.

The bedroom should, if possible, have a south aspect, should be of a good size, and should be free from noise, either from outside or from within. The bedclothes should be light, the *pillows being so arranged as to support the head adequately*, without necessitating any rigidity or tension in the muscles of the neck. Many people fail to appreciate this fact, with the result that sleep is delayed. Broadly speaking, the head should be higher than the rest of the body, and two or more pillows are generally required. These should fit in between the side of the face and the curve of the shoulder, so as to afford support to the head when it rests upon the pillow. Attention to this detail will avoid repeated awakenings to adjust the pillows and rearrange the bedclothes. Where these latter are too heavy, they are inclined to awake the patient by their pressure, and two or three blankets and an eiderdown are much to be preferred to many thick blankets. Warmth in bed is essential, but it should not be encouraged to excess, for we do not wish to produce diaphoresis. To promote a fall of cerebral blood-pressure, then, we should prescribe a glass of hot liquid upon retiring, but this should not be drunk until the patient is actually in bed and ready to put out the light. This, and possibly some gentle massage to the spine, will be found useful in inducing sleep. If additional measures of a like nature are required, a rubber hot-water bottle or a pad of thermogene wool applied to the epigastrium are frequently of great service. A warm bath before retiring is not contra-indicated, but the temperature of the water should be moderate, and should not exceed 105° Fahrenheit. The patient should avoid evening exercises, as these are too stimulating, and are likely to produce fatigue at the end of

the day, and should therefore be carried out in the morning.

Some such preparations as these are a suitable finish to the day's work, and if consistently performed should be a valuable asset in the induction of sleep. If the patient is made comfortable in bed and every care taken to prevent outside causes producing wakefulness, he should be able, in most cases, to ensure that his mind does not encourage insomnia.

Finally, he should be put to bed with the assurance that sleep is coming as a matter of course, and the nurse's confidence in this will do much to produce the desired result. He should not be disturbed unless necessary, neither should he be allowed to anticipate wakefulness. A long night's sleep refreshes the weary nervous system, and does more than anything else to banish the cares and anxieties from which the neurasthenic suffers.

It will be at once obvious what a large part the mental element plays in the counteraction of insomnia. Indeed, the methods just enumerated may be said to consist of two agents: first, the insistence of ideal conditions in which to woo sleep; second, the instilling of confidence in the mind of the patient that sleep and *not* insomnia is to be expected. This latter factor is by far the most important asset we have in the remedying of sleeplessness.

* * * * *

As we stated in a previous chapter, insomnia is fortunately by no means so common in Neurasthenia as has frequently been stated, and many neurasthenics do not exhibit this symptom in any marked degree. It is true that sleep is often disturbed, and that occasionally a

night is passed with only snatches of sleep, but, broadly speaking, a fair proportion of these patients sleep well.

But whenever we are called on to treat a patient who has suffered from sleeplessness for some length of time, it is necessary to insist on some rest in the daytime to compensate for the lack of sleep at night. The ideal time for this is undoubtedly the early afternoon, and we are more likely to be successful in promoting sleep in the daytime if we choose the hour following the midday meal. At such time the processes of digestion are attended by a fall of the cerebral blood-pressure, and the somnolence which is usually encouraged by a meal is helpful in promoting sleep. Those patients, then, who are unable to obtain adequate sleep at night should be encouraged to rest after luncheon, and to endeavour to obtain an hour's sleep.

Even if the effort to sleep is not successful, the post-prandial rest is helpful, and such a siesta divides the waking day into halves and tends to prevent that excessive weariness which is liable to occur towards night-fall. We should therefore lay down a rule of midday rest for those patients who sleep badly or insufficiently.

We may here refer to what have been called "nerve-rests," "relaxation exercises," or "organised rests." Such processes are intended to banish that restlessness which so often supervenes when the neurasthenic endeavours to relax his body in rest. It is obvious that the mind *and* the body must rest if any benefit is to accrue, and it is useless to expect good to result from resting the body if the mind is in a turmoil. "Nerve rests" are intended to produce a complete rest, and their success should be seen in the mind as well as in the body. They consist in a daily rest for half an hour or more, the

patient relaxing all his muscles, breathing more deeply than normal, and endeavouring to obtain a condition of passivity.

Such rests, when indulged in after meals, are also a great help to digestion, which is rarely perfect in Neurasthenia. The splanchnic circulation is better carried on in the absence of muscular or mental work while mind and body rest than if the patient is permitted to follow his ordinary occupations immediately after meals. This has the additional advantage that our patients are in the best possible conditions to digest their food.

CARE OF THE TEETH.

It is necessary that all patients whose nervous systems are debilitated should have satisfactory teeth: both with regard to their power to masticate as well as their cleanliness. Oral sepsis can be accepted, in the light of modern researches, as contributing in no small degree to the detriment of sound digestion. In like manner, food which is only imperfectly broken up by the teeth, and reaches the stomach in lumps rather than in boluses formed into paste by the saliva, must of necessity be harder to digest by the gastric and intestinal juices. Our first care in this department of general hygiene should be to inspect the mouth and insist upon oral cleanliness and a sufficiency of teeth. Septic stumps should be removed, gingivitis should be treated by antiseptics and by massage with hard tooth-brushes, or, if too advanced for this régime, by extraction of teeth.

Where teeth are not suitably supported in the opposite jaw, artificial dentures should be supplied, and the patient should be encouraged to eat his food slowly and to masticate it thoroughly. In this way we ensure the

arrival of the food in the stomach in the process of the first stage of digestion. The toilet of the mouth is more important in the neurasthenic than in the ordinary person, for he is frequently unable satisfactorily to digest carbohydrates—often because he does not allow his saliva to commence the process of digestion of this class of foodstuff. If, at the same time, he is swallowing saliva teeming with micro-organisms and pus, it will be obvious that digestion is liable to become still more impaired, and even a catarrhal gastritis set up.

EXCRETION.

Next in importance to the hygiene of the mouth and the proper digestion of the food is the adequate excretion of waste products. The question of constipation, especially the *atonic* variety which exists in Neurasthenia, is extremely difficult to deal with: first, because of the gravity of the danger with which it threatens the patient; secondly, because its treatment is frequently tedious and unsatisfactory; thirdly, because it is extremely difficult to check the statements of the patient with regard to this function. What he will regard as a satisfactory evacuation is frequently the very reverse, and so many patients regard a clearance of the bowels as "weakening." This old-fashioned and quite fallacious idea is rapidly disappearing, as we come to understand more about constipation and its unhealthy sequelæ.

We are mainly concerned here with stating that the important question of excretion by the bowel demands adequate and careful investigation in every case. The symptomatic treatment of constipation is important, apart from any general treatment instituted.

The motion should be inspected periodically in every

case where there is reason to suspect insufficient evacuation, and its size, shape, reaction to litmus, and odour noted. In this way we shall be able to form an opinion as to whether retention of fæces exists.

EXERCISE.

The question of exercise for the neurasthenic has been briefly outlined in the previous chapter; and we stated there that the amount, nature, and duration of exercise must depend largely upon the state of the patient and the stage of the disease. In the "convalescent" stage, when the patient is improving and the symptoms disappearing, graduated exercise, carefully chosen, and carried out on a definite scheme, is of the greatest value and is an essential part of successful treatment. In a severe case such a course is often precluded by the necessity of rest on account of the generalised weakness. Here rest is more necessary, and exercise would but add to the trouble.

It is difficult to make dogmatic statements on this question, as every case must perforce be treated upon its merits. When the convalescence is commencing, massage will be found to be invaluable as an intermediary between complete rest and active work. In the "acute" stage, moreover, even massage is unsuitable, and will be found frequently to increase restlessness, and so prove hurtful to the patient. If we may draw an illustrative parallel, the two stages of Neurasthenia are not unlike the two stages of neuritis: the acute stage in which absolute and complete rest is imperative and any attempt at massage or movement is fraught with acute pain and followed by bad after-effects; and the subsequent stage where massage and movement, active and

passive exercises, are indicated to stimulate circulation to the part which has become semi-atrophied by the disease. In like manner, the acute stage of Neurasthenia demands rest rather than exercise: while the convalescent requires a gradual and graduated system of exercises to restore muscular tone and promote a healthy circulation.

So, in this latter stage, we should commence by massage, continue with open air exercises and the institution of a system of physical culture, and eventually permit the participation in some mild game—*e.g.*, a few holes at golf. A gradual return to normal life is what should be aimed at, but a careful watch is needed to make certain that no overstrain is permitted or undue fatigue produced.

Before discussing the diet of Neurasthenia, we must once more emphasise how large a part is played by the physician in the treatment of Neurasthenia. All the details which we have enumerated, the *minutiæ* of treatment, the régime upon which the patient orders his life, are but so many ways of expressing the influence exerted by the personality of the adviser; and his knowledge of the effects of the various remedies, his capacity to understand and to sympathise with the troubles of his patient, as well as the confidence he inspires by his ready counteraction of troublesome symptoms, are of the first importance to the patient, whose faith perhaps has already been shaken and his belief in the probability of cure weakened. It is the work of the doctor to take complete charge of the case, to arrange all details of the daily life of his patient, and to relight the fires of life which are so frequently "damped down" by this serious malady. If the patient can be *convinced* of his recovery, not only does he

willingly undergo any treatment, however unpleasant, but the effect of such treatment is undeniably enhanced by his attitude of faith.

The small details of treatment which we have just enumerated may sound trivial, but they are nevertheless of cardinal importance, and they have therefore been described here, as the doctor needs to describe them to his patient, in a minute manner, laying stress upon every detail that the patient may be undecided upon, and showing no doubt or hesitation as to the course to be adopted. If this is done, each and every action performed by the patient when undergoing treatment carries with it the patient's belief that it is one step nearer recovery; and this has an added value towards health.

CHAPTER III

GENERAL PRINCIPLES OF DIET

IN order to understand why we advise certain articles of diet in certain conditions, we should study the physiology of food and the changes it undergoes in the human body. Food may be divided into its three main constituents—proteids, carbohydrates, and fats; and the human body requires these three main principles in varying proportions. The diet of a resting man differs from the diet suitable to a man doing muscular work, and this may best be shown by the tables of the amount of the three proximate principles required per diem as drawn up by Von Ranke.

<i>Diet for a Man at Rest.</i>				<i>Diet for a Man at Work.</i>			
Proteid	..	..	100 grms.	Proteid	..	..	125 grms.
Carbohydrates	..	..	240 "	Carbohydrates	..	..	500 "
Fat	..	..	100 "	Fat	..	..	50 "

Again, we have to consider how many calories are produced by the three kinds of foods, and what varieties of edibles, and in what quantity, correspond to these tables. The second table (for a man at work) contains about 3,027·5 calories, which is what is usually considered to be sufficient for the needs of the body.

Waller has drawn up the following table as being equivalent to this amount :

Foundation	..	$\left\{ \begin{array}{l} 1 \text{ lb. bread.} \\ \frac{1}{2} \text{ ,, lean meat.} \\ \frac{1}{2} \text{ ,, fat.} \end{array} \right.$
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Accessories	..	{	1 lb. potatoes.
		{	$\frac{1}{2}$ „ milk.
		{	$\frac{1}{2}$ „ eggs.
		{	$\frac{1}{8}$ „ cheese.

This contains 330 grms. of carbon and 21 grms. of nitrogen, producing rather more than 3,000 calories; and as the average day's work is said to require about 3,000 calories, this diet would appear to be suitable in this respect.

Gautier* gives the following figures:

<i>For the Man at Rest.</i>				<i>For the Man at Work.</i>			
Proteids	..	..	4 oz.	Proteids	..	..	5 $\frac{1}{2}$ oz.
Fats	..	..	2 $\frac{1}{2}$ „	Fats	..	..	3 „
Sugar or starch	..	..	15 „	Carbohydrates	..	..	22 $\frac{1}{4}$ „

Gautier gives these figures for the daily quantities required by an average individual: but it will be quite obvious that they require adjustment for variations in weight and height in normal health, and of course in morbid conditions.

The three proximate principles—fats, carbohydrates, and proteids—serve different purposes in their passage through the body. While fats and carbohydrates play the part of combustibles (and to a certain extent proteids do also), proteids subserve other functions.† Nevertheless these principles are more or less interchangeable in the body, and can be substituted for each other, up to a point. It is impossible to maintain life on proteids, or on fats and carbohydrates, alone. The amount of heat, therefore, or in other words the number of calories, which is supplied by the combustion of any given weight of food is taken as a unit.

* *L'Alimentation et les regimes*, Paris, 1904.

† The old idea that the sole function of proteids was to repair tissue-waste is no longer generally held.

Rubner ascribes the following caloric equivalents:

1 oz. of proteid is equivalent to 116 calories.			
1 oz. „ fat	„	264	„
1 oz. „ carbohydrates	„	122	„

Therefore we see that the amount of food needful for a man at rest and for a man at work (as quoted from Gautier) nearly corresponds, in caloric value, with these figures. It should be mentioned here that a woman requires less than a man, somewhere about 2,000 to 2,500 calories being sufficient, according to whether she is at rest or working.

Several factors should be remembered in relation to the ingestion of food and its actual value to the system. First, we are seldom able to weigh the patient's nourishment, at all events, on all occasions, and, therefore, we are bound to rely upon his statements or the observations of his nurse or servants. We cannot therefore be sure that the amount is suitable, as in all likelihood it is governed by that contrivance which may be relied upon in health, but which is quite unreliable when neurasthenic atony is present—namely, appetite. Secondly, we do not know, and in most cases we cannot ascertain, what proportion of the nourishment taken is actually assimilated; in many cases, faulty gastro-intestinal mechanism prevents the normal cycle of digestion, and the results of fermentation and gastro-intestinal atony successfully hinder absorption. This is not so, of course, in all patients; but many neurasthenics suffer from increasing loss of weight, which, in the absence of other causes, certainly points to mal-assimilation.

We should, therefore, be careful to make periodic observations of the patient's weight, and to undertake a thorough investigation of the weight of the food, at

all events at the commencement of treatment; and this will enable us to make as certain as is possible that the diet is such as will, if properly digested, add to the patient's bodily weight. If then we find that increase of weight does not occur we shall have to look elsewhere for the cause.

It may be helpful, before we commence to study the treatment of Neurasthenia by diet, to give a table showing the percentage composition of the common articles of food. Now, the value of these foods is relative to the amount utilised in the body and the amount excreted in the residue—*i.e.*, the percentage of utilisation.* Again, certain changes of a chemical nature are undergone by the food in the process of digestion which materially modify its food-value: as an example the proteid of meat, resembling as it does so closely the nitrogenous elements of our own body, appears to be much more readily assimilated than the proteid of vegetables. If we remember these facts, we shall doubtless find the two following tables, both of which we borrow from Ballet, of substantial use.

TABLE I.
COMPOSITION OF THE PRINCIPAL ARTICLES OF DIET.

<i>In 100 Parts by Weight of—</i>	<i>Albumen.</i>	<i>Fat.</i>	<i>Carbo- hydrates.</i>
Bread (fresh wheaten) ..	7·0 to 9·3	0·85	46 to 55
Beef (average)	20 to 96	5·41	0·46
Veal (average lean)	19·86	7·70	0·41
Mutton (average)	17·11	5·77	—
Pork (average lean)	20·25	6·81	—
Ham	15·98	34·62	—
Chicken (fat)	18·49	9·34	1·10

* See Ballet's *Neurasthenia*, pp. 219-221, for many facts relative to this subject.

TABLE I.—*Continued*

<i>In 100 Parts by Weight of—</i>	<i>Albumen.</i>	<i>Fat.</i>	<i>Carbo- hydrates.</i>
Turkey (average)	24.70	8.50	—
Goose	15.91	45.59	—
Pigeon	22.14	1.00	0.76
Hare	23.14	1.97	—
Rabbit	21.47	9.76	0.75
Venison (roe-deer)	19.77	1.92	1.42
Partridge	25.26	1.43	—
Thrush	22.19	1.77	1.39
Salmon	21.60	12.72	—
Herring (fresh)	14.55	9.03	—
Mackerel	19.36	8.08	—
Shad	18.76	9.43	—
Dab	18.71	1.93	—
Sole	17.26	0.81	—
Carp	15.71	4.77	—
Trout	17.52	0.74	—
Skate	22.08	0.45	—
Eggs	12.55	12.11	0.53
	(about 92 grains per egg)	(92 to 107 grains per egg)	
Meat broth	0.75	—	0.14
Cow's milk	3.66	3.62	4.48
Cream (from cow's milk) ..	3.76	22.66	4.23
Butter (Normandy)	0.80	86.40	0.18
Potatoes	1.30	0.15	20.00
Dried beans	13.80	1.95	52.90
Peas	23.15	1.89	52.70
Lentils	20.30	2.40	56.00
Asparagus	1.79	0.25	2.63
Cauliflower	2.48	0.34	4.55
Carrots	1.23	0.30	9.17
Spinach	3.49	0.58	4.44
Barley-meal	11.38	1.53	71.22
Oatmeal	9.65	3.80	69.55
Rice flour	5 to 6.4	0.8 to 4	78.83
Cheese (Gervais)	14.32	43.22	—
" (Brie)	18.97	25.87	0.83
" (Gruyère)	29.49	29.75	1.46
" (Dutch)	28.21	27.83	2.50
Apples	0.36	0.82	7.22
Greengages	0.41	0.91	8.24
Peaches	0.75	0.92	13.65
Apricots	0.49	1.16	10.60
Cherries	0.67	0.91	10.24
Pears	0.36	0.20	11.80
Strawberries	0.54	0.93	7.00
Grapes	0.60	—	14.22

Free acids.

TABLE II.
PERCENTAGE OF PROTEIDS UTILISED.

	<i>Percentage utilised.</i>	<i>Residue.</i>
Beef	97·5	2·5
Fish	97·3	2·7
Milk (casein)	91·7	8·3
White bread (gluten)	78·9	21·1
Wholemeal bread (gluten)	58·7	41·3
Lentils (legumin)	60·0	40·0
Peas (legumin)	72·2	27·8
Haricot beans (legumin)	69·8	30·2
Rice (gluten)	75·0	25·0
Potatoes (legumin)	78·0	22·0
Cabbage (legumin)	81·5	18·5

These two tables are of value, for they show the basic composition of the common articles of diet, and the proportion of proteid which the body should utilise, *normal assimilation being assumed*.

Having dealt with the outlines of proteid metabolism, let us turn for a moment to the consideration of carbohydrate digestion.

This important class of foods comprises as much as 75 per cent. of the normal diet, and forms the bulk of the bodily nourishment. It is digested primarily in the mouth by the action of the saliva, and this digestion is continued in the stomach until the contents become acid. Normal gastric juice does not act upon carbohydrates except by hydrolysis of the starch. Digestion of carbohydrates is continued by the amyllopsin in the pancreatic juice and concluded by the action of the *succus entericus*. It is mainly absorbed in the form of dextrose, and may then either be stored in the liver as glycogen, or anywhere in the body as fat, or it may be consumed in the production of muscular energy. Should

the carbohydrates of the food be used in none of these ways, they may appear in the urine in the form of glucose.

The value, or rather the necessity, of carbohydrates is shown by several facts. The body requires fifteen times as much carbon as it does nitrogen, yet the proportion in proteid is only three to one. A diet-sheet consisting exclusively of meat would entail enormous wastes of nitrogen, and an undue formation of urea in its excretion, if the requisite amount of carbon is to be obtained by the body. By utilising carbohydrates, therefore, we can obtain our carbon in relatively large quantities, and they thus serve to balance the excess of nitrogen in proteins. Again, of the three proximate principles, carbohydrates are by far the richest in oxygen, and therefore if they form no part of the dietary it is impossible for the oxidative processes in the body to be brought about. In the particular disease we are studying, moreover, they are useful inasmuch as they are capable of increasing the fat-storage of the body—a very important point in connection with debility.

In spite of this fact, however, we have to prescribe carbohydrates with extreme care, because they have earned the reputation (and justly so in some forms) of being badly tolerated by the neurasthenic. This is undoubtedly true as regards moist, “sodden” forms; of which the tendency is to eat a quantity, usually rapidly, and without sufficient admixture with the saliva. It must be remembered that the gastric juice has no action upon carbohydrates (excepting hydrolysis), and that therefore the initial stage of carbohydrate digestion takes place (or ought to take place) in the mouth.

Unless we choose some form of carbohydrate food

which does not seriously hamper digestion, we shall certainly find that it is badly tolerated by the neurasthenic. The ideal form should be dry, light in weight, and thoroughly mixed with saliva before being allowed to enter the stomach. Such a diet as rice-pudding is eminently unsuitable, especially when any atony of the viscus exists, for it is sodden, heavy, bulky, and decomposes with the formation of large quantities of gas. Such a combination is a serious menace to the atonic viscus, indeed its digestion would be a difficult task for the healthy stomach to accomplish successfully. Apart from the bulk of most carbohydrates, it should be remembered that it is a fattening diet, and therefore should be prescribed with caution unless we have such an object in view; carbohydrates, moreover, as a group contain a fair proportion of cellulose which is not digested but whose bulk is useful for stimulating intestinal peristalsis.

Carbohydrates are more prone to be stored in the form of fats than even fats in the food themselves, the reason probably being that these latter, being so readily oxidisable, are speedily combusted and not laid down in the body as fat.

Little need be said with reference to the metabolism of fat. Its principal function in the body is one of protection; apart from this it is a source of heat production. It has a high calorific value (9·3 calories for each 1 gr. consumed), and is therefore suitable and welcome as a source of nourishment in cold climates. It is, however, difficult of digestion and has no stimulating effect upon the gastric juice—in fact, it is said to partially inhibit this flow. If the object of the diet is to produce increase in the fat of the individual, a generous addition

of carbohydrate is required, due care being taken that it is ingested in a suitable form.*

Fats also play the part of protein-sparers, but not to the same extent as carbohydrates. They are also of use as a storer of energy: the liver acting as a converter of the less active fats into unsaturated fats, which latter are more oxidisable, as shown by Leathes.

Milk must next occupy our attention, as it is so often recommended as an ideal food. To obtain approximate quantities of the three fundamental principles in the twenty-four hours, 5 pints of milk would be required. Such an amount would contain—

Albumen	..	..	..	..	4.9 oz.
Fat	..	..	..	..	4.0 "
Carbohydrates	..	..	..	..	5.5 "

Comparing this with the amount required by the body of these substances,† we shall see that there is too much fat, but a great deficit in the amount of carbohydrate. Added to these faults, milk is deficient in certain organic salts which the body requires, is overrich in calcium, and is too bulky and dilute a food to form the sole diet for adults.

Exclusive vegetarian dietary is not to be recommended, and we shall readily understand that the following points alone would render it undesirable, so that we may spare ourselves a lengthy dissertation on the merits of the vegetarian propaganda.

1. The "coefficient of utilisation" shows that the protein content available for assimilation in the vegetable

* The classical experiments of Lawes and Gilbert proved the fattening properties of carbohydrates, for by feeding pigs upon barley-meal they showed that the excess of fat produced must have been derived from the carbohydrates.

† See tables on p. 233.

foods containing a relatively large protein percentage is low—which means that the residue is correspondingly high; therefore to obtain sufficient proteid the bulk must be unnecessarily large.

2. Recent work on the physiology of digestion has resulted in the isolation of “vitamine” constituents of ordinary food which do not belong chemically to any class of proximate principle, neither are they saline substances. They are organic bodies which are only present in minute quantities, and play a most important rôle in the processes of nourishment and growth: Hopkins found that when food from which these substances had been extracted was given to animals as the sole diet, their growth at once ceased. The bodies to which Fünk has given the name of “vitamines” appear to possess the properties upon which cell-nutrition and growth largely depend.

These vitamins are contained in fresh food, and are possessed of an antiscorbutic power, which is entirely lacking when the nutriment has been preserved, or “sterilised.” As so large a part of the “professional vegetarian’s” dietary consists of artificially prepared foods, which are the result of an endeavour to avoid the monotony of vegetables cooked in a normal manner, it will be obvious that they lose these properties in such dishes.

3. The anatomy of the alimentary canal of the human individual is not adapted for a herbivorous diet, the stomach and cæcum being too small to accommodate comfortably the bulk required if the adequate amount of the three principles is to be ingested.

4. The large proportion of vegetable protein is of small nutritive value, while the high proportion of

carbohydrate necessarily taken to obtain adequate protein nourishment is productive of other harmful conditions—*e.g.*, phosphaturia, oxaluria, etc.; while the cellulose contained in some carbohydrate food is of no nutritive value.

These are some of the reasons why complete vegetarian diet is unsuitable, but many people who indulge in this form of diet do so in the mistaken belief that the percentage of proteins in the various vegetables and fruits is synonymous with the amount available for absorption into the blood-stream; and they seek to show that the percentage of this substance is higher in some lentils than in meats. But they forget that the *utilisation percentage* is far lower: also another salient fact, to wit, *that the nearer in its nature the food is to the eater, the more readily is it digested and absorbed*. Thus, meat is far more nutritious than peas or beans and contains much more energy-producing material weight for weight.

Various inorganic salts are necessary to health, and of these sodium potassium and calcium are the chief, while iron and phosphorus likewise are important metals. Deficiency or absence of any of them for a prolonged period is incompatible with health, and excess of several of these substances is regarded as being productive of disease—*e.g.*, excess of calcium is believed to be conducive to thrombosis. Deficiency in the intake of iron is said to produce anæmia; while to diminished phosphorus-ingestion are attributed various states associated with debility, of which our present subject is one.

What are the facts relating to the intake and elimination of salts by the body? All foods, speaking in general terms, contain inorganic salts, but in differing proportions. Thus, animal flesh is deficient in phosphorus,

although rich in iron and nitrogen, while vegetables are the chief source of phosphorus, and are also rich in the salts of calcium, magnesium, potassium, and sodium. Milk likewise contains one part of phosphoric acid in 2,000, eggs contain about 2 grs. each (in the form of lecithin), while cereals are also rich in phosphorus.

The following are the figures relative to the excretion of salts from the system. In twenty-four hours, the individual in health eliminates—

Potassium	..	..	..	..	..	50 grs.
Sodium	..	..	..	..	..	119 "
Calcium	..	..	..	..	..	23 "
Chlorine	..	..	..	..	..	131 "
Peroxide of iron	..	..	..	..	..	0.6 "
Phosphoric acid	..	..	..	..	..	60 "

Compare this with the table given by Gautier of the amount of the various substances contained in 10,000 parts of fresh nerve tissue—

Chlorine	..	..	..	..	..	4
Phosphoric acid	..	..	..	..	..	8.5 to 14
Sulphuric acid	..	..	..	..	..	1.4
Potassium	..	..	..	..	..	7.1 to 21.2
Sodium	..	..	..	..	..	7.5 to 13
Lime ..	..	..	..	..	..	0.3
Magnesia	..	..	..	..	..	0.65 to 7.5
Peroxide of iron	..	..	..	..	..	0.4 to 1.2
Carbonic acid	..	..	..	..	..	2.1 to 3.3

The fact above all others which would interest us to know we have, unfortunately, not been able to ascertain—namely, the proportion of the inorganic salts excreted which is derived from the destruction of the nervous tissue. We know that many neurasthenics whose nervous systems are continually being exhausted exhibit increased elimination of phosphorus from the body; we are also told (Byasson) that it is present in

the urine in increased amounts after concentrated mental effort. Unless the excretion of the inorganic salts is markedly increased, or the wastage from the nervous system exceedingly high, the ordinary mixed diet more than replaces these substances which are daily excreted. Nevertheless, it has been the custom for many years for medical men to prescribe phosphorus (in some form) for cases of debility, in the belief that it helped to restore the wastage of the nervous system. There can be little doubt that phosphoric acid, and acid sodium phosphate, markedly relieve those neurasthenics who exhibit increase in the phosphorus output in the urine.

Before discussing the diet of the neurasthenic, let us close this brief survey of the physiology of food by some observations on the excretions of the body.

Valuable as the periodic analysis of the urine undoubtedly is, and helpful as it has proved to be in deciding details of diet, we must remember that it only affords us information with reference to the proteids and salts, as the carbohydrates are mostly oxidised and excreted by the lungs. Modern research, however, teaches us that the constituents of the urine are derived mainly from the food and are not the results of tissue katabolism; in view of this, therefore, periodic examination of the renal secretion and analysis of its contents will often prove very helpful. The results of such examinations, when compared with the normal, will show us in what way the constituents differ in quantity from what is present in health, and when we are in possession of these data we are able to regulate the diet accordingly.

For this reason alone we are justified in including

in our routine examination of the patient a systematic analysis of the urine.

Halliburton maintains that the urea present in the urine is mainly derived from the nitrogenous food: while the breakdown of the nitrogenous tissue of the body produces creatinine in the urine. This fact is important, for it shows us that the output of urea is chiefly determined by factors other than tissue breakdown, such as the amount of nitrogenous food consumed, the ingestion of fluids, of salts, and the addition of fat to a nitrogenous diet; also that the ingestion of farinaceous food diminishes the output.

The most abundant constituents of the urine are water, urea, and sodium chloride, and, of course, these all vary according to the amount of exercise taken, the diet, and so on.

We may fairly assume, therefore, that the urinary secretion is the result of the processes of digestion and food-katabolism, rather than the end-products of tissue-breakdown. Modifications in the diet will alter the constituents of the renal secretion, and, when we understand more of the processes which underlie metabolism, we shall doubtless be able to turn the knowledge afforded us by urinary analysis to better account. At present, by care in estimating the solids and fluids ingested by the body, and comparing the figures so obtained with the results of urinary analysis, we shall have gleaned some knowledge which will help us in deciding a dietary.

CHAPTER IV

NEURASTHENIA AND DIET

IN deciding upon the diet most suitable to Neurasthenia we should consider the subject from several points—namely:

(a) The diet should be of such a character that the food is easily digested.

(b) It should contain sufficient nourishment to keep up the bodily weight.

(c) It should be regulated to provide adequate bulk on which the intestinal muscles can contract.

(d) It should be adapted to the special needs and requirements of the particular case.

(e) The general lines upon which we arrange a diet should be regulated by an investigation of the excreta.

When we take into consideration the facts relative to the physiology of digestion and assimilation which we have considered in the last chapter, and then endeavour to suit the diet to the especial needs of the neurasthenic, we have to bear in mind several desiderata. First, what elements of food are particularly required by these patients? Secondly, in what form of diet should we clothe our proteins, carbohydrates, and fats, our salts and our fluid? Thirdly, if we assume from our examination of the urine that there is an excessive loss of phosphorus and its compounds, do these come from the food taken, or from the tissues? If the former, do the tissues

fail to receive regular supplies of this substance from the food: and, in either case, must the diet be adjusted so as to attempt to produce a greater absorption of phosphorus into the body? Again, does the excess in the urine, if present, represent undue katabolism of the central nervous system? We shall endeavour to answer these questions, so far as is rendered possible by the existing knowledge of the metabolism of the neurasthenic, but unfortunately we are not able to deal, otherwise than tentatively, with many of these factors of diet.

Three statements at once occur to us, in this connection, as irrefutable:

1. The average neurasthenic is benefited by a diet largely composed of proteins, carbohydrates being less satisfactory.

2. Salts (inorganic) are a necessary constituent of the diet.

3. The food should be taken dry and should avoid bulk. Fluids should be consumed between meals.

Many modifications are needed in the application of these laws, according to the individual case, but they stand on their own merits as true for the majority of patients suffering from Neurasthenia.

Dealing with these points one by one, we must give our reasons for the first statement. Proteins have the following advantages, which are particularly suitable for nervous exhaustion:

1. They are the energy-producing substances of the food.

2. They are the substances mainly responsible for the building up of the body, and they replace nitrogenous waste.

3. The body is able to be built up from any variety of protein-food, but the resulting tissue-proteid is always the same.

4. They provide energy *at short notice*, with comparatively small waste.

5. The proteins, as a group, are found in association with "vitamines," which latter are necessary for growth and restoration.

6. They can always be prescribed in concentrated form, so that a large proportion of protein is obtained with relatively little residual bulk; this is not so, of course, in the vegetable proteins.

We are not maintaining, of course, that the diet should be composed entirely of proteins, as such a plan would be impossible. But we mention the great advantages these possess over carbohydrates because, as we shall see later, the neurasthenic derives much more benefit from such a diet than from one in which he is stuffed with carbohydrates, fats, and milk, in the mistaken belief that the putting on of fat is synonymous with the regeneration of the nervous system. Again, a mixed diet is essential, and is always the most suitable for the "ambulatory" neurasthenic, inasmuch as he requires salts, and these must be obtained largely from vegetables, cereals, and fruit.

Now we come to the third desideratum—namely, the advisability of a "dry diet" in Neurasthenia. Its advantages, briefly, are—

1. The food can be digested without undue dilution of the gastric juice.

2. The weight of the meal is probably halved if we refrain from drinking with meals.

3. Salivary digestion is continued for a longer time in

the stomach and is, of course, more potent, when no liquid is drunk with food.

4. The fluid consumed between meals serves to wash out the stomach in readiness for the next meal, and is more readily absorbed in the absence of digestion.

When we consider that the habit of eating and drinking synchronously is largely the result of civilisation, and that most of the lower mammals, and all birds, drink when they are thirsty and eat when they are hungry, we shall see that this custom mainly resulted for convenience and not from reasons of hygiene.

The initiation of a "dry diet" is frequently followed by a marked improvement in the digestive powers of the patient, and the amelioration of symptoms of indigestion—the feeling of weight after food, the flatulence, and acidity—proves that a strain has been removed from the organs of digestion. It is not to be wondered at, therefore, that when the stomach has been abused by the ingestion of a large quantity of carbohydrates washed down with a pint of fluid, it may be, copious gas is liberated, secretion is inhibited, and painful peristalsis results.

Insisting upon a diet at which solids and fluids are kept apart, is regarded at first as a hardship by the patient, but once the habit of drinking between meals has been adopted, the desire for liquid with meals soon disappears. It is sometimes a difficult rule to obey where many business details call for incessant journeys frequently away from home or office, but, where the patient has made up his mind to obey, a way can generally be found.

To give a general idea of the plan adopted, let us glance at this diet-sheet, which is, on broad lines, suitable to the

needs of most neurasthenics. Many modifications can be initiated, where desirable, and the nature of the food changed to make it suitable to concurrent conditions—*e.g.*, gout, lithæmia, phosphaturia, and other complications of the neurasthenic.

Some such diet as the following will be found suitable in most cases of Neurasthenia:

On waking.—A tumblerful of hot water should be drunk.

Breakfast.—This meal should be substantial but not heavy. An egg, boiled fresh fish, or a lightly grilled chop, followed by toast and butter (the latter limited in amount and only in suitable cases).

11.30 *a.m.*—A glass of hot beef-tea, mutton broth, or simply a glass of hot water.

Luncheon.—Luncheon should consist of a grilled chop freed from fat, or steak cooked by the Salisbury method, and accompanied by any green vegetable, cooked in its own juice and served dry. A small milk pudding should accompany this course in suitable cases.

4.30 *p.m.*—A cup of China tea served without milk.

7.30 *p.m.*—This meal should resemble the midday meal, but should be varied according to what has been partaken of at that meal. If the patient has had a chop, fish should be consumed, but on no account should fluid, even soup, be allowed. Chicken, or a slice from the fresh joint, may take the place of fish.

10.30 *p.m.*—A glass of hot milk, or a cup of arrowroot or ovaltine.

With such a dietary as the above, it is possible to administer a large quantity of nourishment without in any way embarrassing the stomach or intestines. It

goes without saying that many modifications will be needed in different cases, but these can easily be initiated without upsetting the general plan.*

DIET SUITABLE WHERE GASTRO-INTESTINAL
SYMPTOMS EXIST.

(a) *Slight Gastric Atony.*

From what has already been said it will be obvious that the diet we have advised for Neurasthenia is applicable to the average patient, whose digestion is normal. In these cases it is often a mistake to persuade the patient to alter his mode of living, to change his diet and to submit to a régime unless we have sufficient reason to believe that the life he is leading is unsuited to his nervous weakness. In fact, we should investigate closely the habits of our patient, but we should not seek to alter entirely his mode of life, unless there seems to be good reason for so doing. This applies to the diet; and unless we find some obvious error of metabolism or some undue indulgence (*e.g.*, the ingestion of excess of fermented liquor or of large quantities of sweetmeats) we should not seek to effect a change. As we are agreed that a mixed diet is the proper plan to adopt in the majority of cases, the main question which we have to decide is the proportion of the mixture. A diet confined to one kind of food, it matters not of what nature, must in our opinion be evil, for the body requires many foodstuffs, and it is irrational to glut with one variety and to starve with another. Whether we aim at a

* "Neurasthenia: Its Causes and Treatment," Geikie Cobb, *Practitioner*, August, 1915. Such a dietary as that outlined above is inserted merely to give some idea of a day's food suitable for the average neurasthenic.

vegetable diet, at a milk diet, at a meat diet, or finally have recourse to fruitarian principles, we are in each case listening more to the emotional whims of the faddist than the weighty judgment of the scientist. Our data point to the wisdom of including all the requisites of the body in a menu; but we must decide upon the dose of the ingredients.

In alimentary health this decision may well be left to the patient, who, apart from indulgence, is generally aware of the food which suits him and that which "disagrees with him." But when the digestive apparatus is out of gear, we have to arrange the diet so that it will not offend the diseased member, but help it to regain its normal condition. In fact, much that diet can do is compressed in the saying, "Leave nature alone, and she will cure." If we put the stomach into the best possible circumstances in which to digest, it will often be sufficient.

Another way of saying the same thing is to emphasise the fact that if we remove any cause of indigestion, we have taken the first step towards cure. Further treatment becomes plain when we have disposed of the original cause, and we can then decide if the malady will "right itself," or whether further attention must needs be given. At this stage, also, we shall probably have sufficient evidence to decide whether diet is indicated in the rôle of curer of the malady, and whether we shall be able to help the impoverished nervous system by a change of food.

In the type of Neurasthenia we are now studying, we have two main objects in view: first, the choice of dishes which will place as little strain as possible on the digestive organs; and secondly, the selection, where

possible, of foods fulfilling this condition and also combining the highest nutritive value with a relatively small bulk.

Slight gastric atony is usually accompanied by digestive disturbances which are only evidenced after meals and last for a variable period, but which are generally over by the time the next meal is due.

We may find that after an occasional fast—that is to say, when a meal is missed on account of indigestion having followed the previous meal—the symptoms do not return until food is again taken. And in general we may conclude that to some extent gastric atony is present. Where serious digestive disturbances result from the ingestion of food, where their duration is short, and where such symptoms disappear in the absence of food, or after an appreciable interval, whatever concurrent disorder may be present, there is in all probability some degree of atony of the gastric musculature.

In spite of differences of opinion as to the diet in such cases, the weight of opinion is in favour of three meals a day rather than of frequent but small meals. The chief advantage claimed for this latter course is that heavy and bulky meals are avoided; but the chances are that any benefit derived from this method is more than counterbalanced by the ceaseless work entailed upon the stomach, and the interference with those periods of comparative rest to which it is entitled. Further, by choosing our foods with care we can avoid bulky meals, even where only three meals a day are taken: and by insisting on a “dry diet,” the weight of the meal can be appreciably diminished. Again, in those patients who make slow progress under this régime, we shall be able to curtail still further the diet

by advising rest in bed while some degree of tone is imparted to the stomach; but this is usually unnecessary in slight cases. It will usually be found that the malady quickly responds to a diet regulated along these lines, and little more is needed save the adoption for a few weeks of some adequate support to the abdominal wall, and this only in those cases where laxness in the ligamentous supports shows itself.

There are some patients, however, who appear to owe their gastric atony more to their general condition than to local causes, and who rapidly improve under general treatment without appearing to require local abdominal treatment or diet. In these cases we are forced to admit that the gastric symptoms must be dependent upon deficient general innervation rather than upon local causes alone. But the majority of these patients require a dietetic régime before the gastric symptoms are ameliorated.

In the last section we suggested a diet which, on broad lines, may be regarded as suitable for Neurasthenia and this with modifications is often sufficient for slight cases of gastric atony.

The following injunctions should be laid upon the patient:

1. He should never hurry over his meals, but allow a definite time for their ingestion.
2. Mastication is of the first importance, and a thorough insalivation of the food should be insisted upon.
3. The diet laid down should be followed even in its *minutiæ*, for, if it is needed at all, its strict observance is necessary.
4. The periods following a meal should be devoted

to rest; and for half an hour to an hour no mental or physical work should be attempted.

Some apology is perhaps needed for detailing such obvious essentials as these, but our excuse is that, if they are wise for the man in health, they are absolutely necessary for the man whose neuro-musculature is faulty, and often receive too little attention.

The diet for these patients must be nourishing and sustaining, and we must not forget that the psychic factor is important—the food should be made as appetising as possible. Among the many dishes which are at our disposal—which contain the elements necessary for a mixed diet and yet satisfy the other requirements as to digestibility and lightness—there are a few which we may enumerate without wearying the reader.

In choosing the constituents of the meals, we must aim at a mixed diet, remembering always that the diet must be generous in proteids; that the carbohydrates must be chosen for their digestibility; and that fluids must be taken between meals. Fresh cooked meat is the best form in which to consume proteids, and the most suitable varieties are mutton—slices from the joint, cutlets, or chops—well-done beef, chicken, game (not well seasoned), eggs (two a day at the most), fat bacon, fish, and cheese. Salmon, mackerel, sole, shad, dab, a herring, and skate, contain the highest percentage of proteins; but the latter fish is somewhat unappetising and indigestible on account of its coarse fibre. Such fishes as these may be boiled, grilled, or stewed in milk, and they are easily digested in these forms.

Vegetables should be chosen for their nutritive value, and for their small proportion of fibre and cellulose. Of these, peas, French beans, asparagus heads, spinach,

lentils, and cauliflower-tops, are the most suitable, and should be included in the midday meal. Cereals, also, are usually able to be digested by these patients and are of high nutritive value; these and farinaceous vegetables may be consumed in the form of barley-meal, rice, sago, tapioca, mashed potatoes, well-cooked lentils, and so on.

Any bread taken should be stale and preferably made from whole flour: the so-called "standard" bread, or brown bread, is usually well tolerated. Toast, however, is better, and should be made from old bread, toasted crisply and thin; if eaten slowly it is readily digested. Milk is a useful and necessary foodstuff, both on account of its nutritive properties and its richness in calcium salts.

(b) *Severe Degree of Gastric Atony.*

Patients suffering from this require extreme care in dieting, and their menu should be chosen chiefly with regard to obtaining nourishment for the body without embarrassment to the stomach. On examining them it will be found that there are always present signs indicative of gastrectasis, and, as displacement of the organ is often present as well as dilatation, it will be obvious that the factor which is going to be of primary importance is diet. In fact, the nature and quality of the food, the hours of meal-times, and the care with which the processes of mastication and deglutition are carried out, will do more to rectify the local condition than all other forms of treatment combined. If the food is so proportioned that a high standard of nourishment is combined with an easy assimilability, the general condition of nervous exhaustion will rapidly improve *pari passu* with the local atony.

There are several important points upon which opinions differ with regard to the diet of this class of patients, and we will deal with them one by one. First, there are divided opinions as to the number of meals which should be allowed, but the majority of authors on this subject are in favour of three meals a day with long rests in between. This plan has many advantages, not least amongst them being that of giving periods of rest to the weakened viscus. If the patient has his first meal at 8 (or even 7.30), the principal meal at 12.30, and the final meal at 7 p.m., he ensures a rest of about five hours between breakfast and luncheon, and about six hours between this latter repast and dinner.

Again, the question, when shall these patients drink? is a vexed one. Some authors suggest a copious libation at meals, others are in favour of dry meals, and still others advocate the middle course. The reason of this difference of opinion is a little difficult to understand, for it must be obvious that fluids *with* meals dilute the gastric juice, interfere with its function of hydrolysis, hamper the chemical changes produced at this stage of digestion, and are very liable to set up undue decomposition of food, resulting in the formation of quantities of gas. It is really a matter of common sense that dry food (or relatively dry) will put much less strain on the chemical as well as on the motor functions of the stomach than meals saturated with moisture.

Again, some difference of opinion exists as to whether rest should be advised after meals. It is a much-discussed question with authors on this subject as to the benefit obtained by an absence of muscular or mental work after meals. Some authorities (*e.g.*, Ballet) are in favour of gentle exercise after meals, and they point

out that digestion seems to be hampered by rest and sleep. There is little doubt that sleep engenders a diminution of peristalsis, and this alone is an argument against the practice of indulging in late dinners and falling asleep immediately after. But this hardly seems to indicate exercise after meals or to be an argument against rest in the recumbent position. In fact, as we have already said, most patients with gastric atony in a severe form also exhibit signs of gastropptosis, when it is obviously better for the stomach if the patient rests in the recumbent or semi-recumbent position when his viscus is full.

We may, therefore, recommend rest after meals, but not sleep, and advise the patient to occupy the time by some light occupation (*e.g.*, reading a newspaper) for an hour or so after the three meals. When this period is completed, gentle exercise is indicated, and there does not appear to be the same risk of inhibiting the flow of the digestive juices, or of causing embarrassment to the neuro-musculature from this change of posture, as might be engendered by exertion immediately after a meal.

What, then, are the lines upon which we should diet neurasthenic patients suffering from marked gastro-atony? From what we have already said, we can lay down some definite rules, which will be applicable for the majority of such patients:

1. The nourishment should contain a higher percentage of proteids than is usually necessary for individuals at rest.
2. The meals should be of high nutritive value but should be light and concentrated.
3. Long intervals should be allowed between meals. Fluids may be taken between meals unless the stomach is unable to empty itself prior to the next meal, in which

case the bulk of the fluid must be administered in the form of enemata.

4. Rest should be enjoined for an hour after meals, and then only gentle exercise should be allowed.

5. Plain food should be the rule, but monotony should be avoided; it is a wise plan to submit several menus which will ensure a variation in the dietary.

6. Adequate support for the viscus should be provided in those patients exhibiting signs of gastroparesis.

Some specimen menus are attached, which may serve to illustrate the range of suitable dietaries for these patients.

DIET FOR GASTRO-ATONY.

I.

On Waking.—A glass of hot water, with or without some simple saline, or a cup of weak tea.

Breakfast.—Well-cooked porridge, taken with little milk, lightly boiled egg, thin toast and fresh butter.

Luncheon.—Boiled fish (no sauce), grilled mutton cutlet, purée of lentils, one baked apple and sponge fingers. If desired one glass of white wine unless otherwise contra-indicated.

4.30.—A cup of China tea, milk and hot water in equal parts, or a cup of cocoa. Nothing to eat.

7.—Chicken, roast or boiled, spinach and mashed potatoes. Egg omelette *aux fines herbes*.

10.—A glass of hot malted milk, or plain hot water.

2.

Breakfast.—Boiled sole, one rasher of lean bacon, toast and jam (not made from stone or pip fruit).

Luncheon.—Roast partridge, pheasant, woodcock,

ptarmigan, or grouse (in season), no chip potatoes, no bread sauce, asparagus or cauliflower. Small tapioca pudding (about 4 ozs.) served dry. Cheese (not old) and plain biscuits. No butter.

Tea.—As usual.

Dinner.—Grilled mackerel, whiting, herring, or trout. Boiled mutton, French beans, mashed potatoes. Toast and butter.

10.—Hot milk or milk and water at bed-time.

3.

Breakfast.—Prepared breakfast food (*e.g.*, 'Grape-nuts,' "Post-toasties," or "Quaker oats" eaten dry). Rasher of fat bacon well cooked. Toast and butter.

Luncheon.—Steamed sole, roast mutton, peas, mashed potatoes. Sago pudding (5 ozs.) cooked dry.

Tea.—As usual.

Dinner.—Roast breast of chicken. Biscuits and cheese.

10.—Glass of milk or Horlick's malted milk.

These diets may need additional fluid, and this may be ordered at 11, and again at tea-time if well borne. If this is unsuitable, it must be administered by normal saline enemata between meals.

CHAPTER V

THE USE OF DRUGS IN NEURASTHENIA

IN this chapter we propose to discuss briefly the place of drugs in the treatment of Neurasthenia. For many years a greater reliance was placed upon the value of drugs, both in general medicine as well as in the treatment of nervous disorders, than is now the case. The tendency has become more marked of recent years to regard treatment by drugs as secondary to those forms of therapy which aimed at removing the cause of the disordered functioning; and the methods of treatment which will be found outlined in Chapters VI. to IX. of this Part have become increasingly popular at the expense of drug therapy.

Nevertheless, certain drugs have been widely used to remedy the symptoms of nervous exhaustion, and this volume could not be regarded as complete if it contained no mention of them. We can only deal with the more generally known drugs. These are divided roughly into two groups—stimulants and sedatives. The former find their field of usefulness either as a general “tonic” or to counteract the generalised fatigue. Sedatives, on the other hand, have been mainly used to reduce the many abnormal sensations from which the neurasthenic suffers.

We will deal first with the drugs which possess a stimulant action.

1. STIMULANTS.

(a) *Nux Vomica*.

This drug, the efficacy of which depends upon the presence of strychnine and brucine, is a direct stimulant to the spinal cord. The former of these alkaloids is by far the more potent, being thirty times more poisonous than the latter. To strychnine, then, may be attributed any effects which *nux vomica* produces.

This alkaloid, when administered by itself, acts more quickly than when given as an integral part of *nux vomica*, probably because the gums, tannins, etc., found in the bean *Strychnos nux vomica* retard the action of the alkaloid. Strychnine is a powerful stimulant to the spinal cord, and increases the excitability of the reflexes. In poisonous doses it produces stiffness and discomfort of the general musculature, followed by generalised spasms.

In physiological doses *nux vomica* has its chief seat of action in the spinal cord, and the administration of this drug is often followed by improvement in the bodily strength, powers of walking, etc. It can be prescribed in several forms: as the tincture, dry extract, or liquid extract of *nux vomica*, as the alkaloid strychnine, or as *liquor strychninæ hydrochloridi*. The choice of these varieties depends largely upon coexistent conditions — *e.g.*, whether a stomachic action is desired, or whether it is prescribed solely for its stimulative action.

This drug has a well-deserved reputation as a “ tonic ” and has been largely utilised to banish languor and physical depression. It should be mentioned in passing that it appears to produce no marked alteration in

the psychical functions. Any improvement in the mental outlook resulting from the exhibition of the drug may be attributed to the increased physical well-being.

Closely allied to strychnine both in its composition and action is ignatia, which belongs to the genus *Strychnos ignatiæ*. This drug contains the alkaloids strychnine and brucine, and differs only slightly in its action from nux vomica. Good results have been said to follow its administration in Neurasthenia.

(b) *Ammonium Salts.*

In the cerebral and spinal "depression" which characterises Neurasthenia, we have often found the salts of ammonium of the greatest help; of these, ammonium carbonate, chloride, and the aromatic spirit (ammon. carb. mixed with alcohol, oils of lemon and nutmeg) are the principal varieties.

These salts are general stimulants, acting upon both the cerebral and spinal centres. In toxicological doses " . . . the most conspicuous effects of the injection of ammonia or its salts into the circulation of animals is the production of tetanic convulsions, which Binz describes as differing from those due to strychnine in the following respects—namely, that the cerebral cortex is affected, seeing that all the motor nerves are implicated, that the convulsions are not so markedly reflex in character, and occur without the intervention of any external stimulus."* This drug also increases the reflex irritability of the spinal cord, and is a stimulant both to the cardiac and respiratory centres. After

* A. E. Garrod, *Textbook of Pharmacology and Therapeutics*, edited by W. Hall White, p. 343.

injection of the salts of ammonia there is a temporary fall of blood-pressure, followed by a marked rise.*

So far as is known, the repeated administration of ammonium increases the blood-pressure, raises vascular tone, and is exceedingly helpful in producing a feeling of well-being. As such its exhibition in Neurasthenia is frequently followed by beneficial results, and if combined with *nux vomica*, which, as we have already seen, acts on the spinal centres (but not on the cerebral), is a useful " tonic " to prescribe for the asthenia of nervous exhaustion.

(c) *Kola*

The administration of kola, which in former years possessed a certain degree of popularity, has of latter years gone out of fashion. In its place caffeine has been prescribed, and has largely usurped the position in therapeutics formerly held by kola.

Kola consists of caffeine and theobromine, and probably owes most of its effects to these constituents. Its action may be considered under two headings—namely, its action upon the circulation and its action upon the nervous system.

(i) Kola produces different effects upon mammalia and upon the frog, for in the former it stimulates the heart and causes first a vaso-constriction followed by a dilatation of longer duration, while in the latter it stimulates the cardiac muscle to such a degree that, in large doses, the heart stops in systole. In mammalia, however, the heart stops in diastole, and all doses of this drug produce first a constriction of short duration,

* See article by Boehm and Lange, *Arch. f. exper. Path. u. Pharmacol.* Leipzig, 1874. Bd. II., S. 364.

followed by a dilatation of much longer duration. Its action on the heart is similar to that of digitalis, as it slows and strengthens the beat, but to a less extent, and, moreover, its action is largely upon the involuntary muscular tissue of the arteries. Its action in this respect is short.

(ii) Its action upon the nervous system is important, and familiar to most people on account of the well-known properties of coffee, tea, cocoa, etc. First, it appears to produce passive dilatation of the cerebral vessels by means of the general systemic vaso-constriction which is present in the early stages. (The cerebral vessels are not directly under the control of the vaso-motor centre, as is the case with, *e.g.*, the abdominal vessels.)* Secondly, it is a direct stimulant to the nervous system, particularly the cerebral functions; it quickens respiration, banishes fatigue, abolishes drowsiness, and enables mental functions to be performed with increased ease. In a similar manner the physical functions are stimulated, bodily fatigue is reduced, and the activity of the spinal centres augmented.

Its exhibition frequently has a beneficial effect in nervous exhaustion, and it appears to lessen the languor and "mental inertia," as would be expected from its pharmacological action. !

Unfortunately for the success of kola, many preparations of this drug are unreliable, and the proportions of the two alkaloids—caffeine and theobromine—are variable. For this reason many prescribers prefer to utilise caffeine, believing that they can rely upon more

* Recent work upon this subject has altered the views formerly held. See an interesting article by Orr and Rows in *Brain*, vol. xli., Part I., 1918, entitled, "The Interdependance of the Sympathetic and Central Nervous Systems."

certain results from this drug alone than from the combination which exists in kola. Although this is true, the clinical results which have been obtained by many authors have proved that kola is a valuable nervous stimulant, and that its use in Neurasthenia has been attended with success. It does not seem, therefore, that we need altogether discard kola for its alkaloidal constituent caffeine, but employ this latter in some form or other as seems indicated in individual cases.

Kola is well borne by most patients, and in the form of an elixir is a useful constituent of nerve tonics.*

(d) *Valerian, Sumbul, and Musk.*

These three drugs all exert a similar action upon the nervous system, and so we can study them together.

They are all antispasmodics and nervous excitants, and yet exhibit, in certain dosages, a sedative effect.

Valerian consists of a volatile oil, complex in character, and (in stale specimens) valerianic acid. Its action is probably due almost entirely to the volatile oil. It is carminative, and has been widely used in this capacity to dispel flatulence, while it appears to exert a stimulating effect in cases of syncope. Its widest application, however, has hitherto been in the treatment of the functional neuroses.†

* Many preparations of kola are on the market, which contain this drug in an attractive form.

† The history of the use of valerian in nervous disorders is interesting. In the days when hysteria was believed to be due to "a wandering of the womb," this drug was administered by the mouth, and it was thought that its highly unpleasant odour would drive the uterus back into the pelvis and cure the disease. This use of the drug apparently forms the basis of its employment in nervous disorders, for there is little else to recommend its prescription in such

Sumbul, the dried roots of *Serula sumbul*, has a musk-like odour and a bitter taste. This also contains a volatile oil, also some valerianic acid. Its action is in all respects similar to the previous drug, but possibly it is less active.

Musk has for countless centuries been prescribed largely, albeit its action and constitution is shrouded in mystery. It is composed of the dried secretion from the præputial follicles of the musk-deer, but beyond this little is known of its composition. The results of experiments which have been carried out to ascertain its effects upon the human body, also its action upon animals, have not increased our stock of knowledge. Beyond the fact that musk is an antispasmodic, a cardiac stimulant, and a sedative to the nervous system, little is known of its action in a more scientific sense.

Nevertheless, despite the slightness of our knowledge of the constitution and actions of these drugs, they have found favour with many prescribers, who have attributed an amelioration of the symptoms of exhaustion, languor, and "irritable weakness," to their exhibition.

(e) *Phosphorus and its Salts.*

Much of the doubt as to the efficacy of the phosphates in Neurasthenia has probably arisen from the indiscriminate prescribing of these substances without adequate investigation of existing conditions in the individual patients. Sole reliance should never be placed upon one such drug as this; and if bad results

a disorder as Neurasthenia, and nothing at all in hysteria. Even assuming that its original use had been based upon sound reasoning, any utility it might possess is often neutralised nowadays by prescribing it in sugar-coated preparations!

follow this haphazard method, it is scarcely a matter for wonder. Many observers, however, have reported good results from the administration of some form of phosphorus in Neurasthenia, and probably the favourite combination is the compound syrup of glycerophosphates. This, however, is an expensive preparation and does not appear to be more efficacious than simple calcium phosphate, to which it largely owes its powers.

Nevertheless, opinion is still divided as to the value of phosphates—*i.e.*, as to whether they are absorbed and able to replace wastage from the central nervous system, particularly in the case of the inorganic salts of phosphorus.

Experiments have shown that if inorganic phosphates are added to the food of a milch cow, the percentage of phosphates in her milk remains unaltered; and it is only when the animal absorbs these salts with grass as an intermediary that she assimilates them. These facts have naturally cast a doubt upon the wisdom of administering inorganic phosphates in the hope of benefiting nervous asthenia by increasing the phosphorus metabolism of the body.

But, although we have no experimental proof that the administration of the inorganic phosphates is productive of benefit to the nervous system, clinical observation would seem to show that they are helpful. Good results have from time to time been reported from the use of dilute phosphoric acid (Joulie and Martinet), and, in cases associated with deficient acidity of the urine, accompanied by marked phosphaturia, some form of phosphorus medication seems worthy of a trial.

From experimental observation, however, better results should be obtained by the exhibition of some

form of organic phosphorus compound, such as phytin, which has been isolated from cereals, and is considered to possess the properties of organic phosphorus. We have not, at present, sufficient evidence to say whether this compound possesses marked superiority over the inorganic varieties.

Whether the excess of phosphates in the urine, which is so common a feature in Neurasthenia, results from the wear and tear of the nervous system, or from the phosphates in the food, is an important question. In health, the phosphoric acid in the urine chiefly originates from the phosphates of the food, but partly from the decomposition of the phosphorised organic material of the body—*e.g.*, lecithin and nuclein. For want of better information of the excess so often observed in Neurasthenia, we must assume, with Joulie, that it is present as the result of diminished acidity of the urine; for we know that in acid urine the acidity is due to the acid salts of phosphorus (sodium dihydrogen phosphate), whereas in Neurasthenia it is usually due to disodium hydrogen phosphate and the normal phosphates of sodium, calcium, and magnesium. These may be present in such large quantities, in some cases of Neurasthenia, as to make the urine turbid, which turbidity dissolves upon the addition of acetic acid.* The

* Leduc says: "Neurasthenia . . . appears to be linked up with a pathological affection of the nutrition of the nervous system, and this seems to me to be related to the metabolism of calcium. Every time a well-marked case of neurasthenia is examined, the urine on heating becomes cloudy by the formation of a precipitate, which, by the addition of a drop of acid, disappears, often with effervescence, sometimes without. When effervescence is produced the precipitate chiefly consists of calcium carbonate; when there is no effervescence it is formed by phosphates of calcium. Calcium salts are dissolved in the urine by carbonic acid, and are precipitated when the carbonic

addition of ammonia to the urine produces a white precipitate of the earthy phosphates —*i.e.*, the phosphates of calcium and magnesium, while the alkaline phosphates remain in solution.

Clinically, there can be little doubt that many patients exhibiting marked phosphaturia are better for the administration of acid phosphates, either as acid sodium phosphate, or else in the form of the dilute phosphoric acid. Exactly how this treatment produces the results it undoubtedly does, is a matter of conjecture.

(f) *Quinine.*

Although this important drug has an enviable reputation as a "tonic," its action on the human body is not such as to make it suitable for the neurasthenic.

We need not enter into details of the pharmacology of quinine, but we will give reasons for its unsuitability.

1. The number of individuals who possess an idiosyncrasy to quinine makes *cinchonism* a relatively frequent occurrence.

2. Quinine depresses metabolism and diminishes the nitrogenous secretion.

3. The function of the tissue cells is depressed by quinine and the products of their activity diminished.

4. Quinine, in many cases, profoundly alters the functions of the special senses.

5. The mental effects of quinine (after large doses, delirium, hallucinations, depression, etc.) are unsuitable to the person whose nervous equilibrium is unstable.

For these reasons, then, quinine can hardly be con-

acid is driven off by boiling. This reaction is almost constant in neurasthenics, and, as often as it is present, the patient is found to have neurasthenia to some extent" (*Practitioner*, January, 1912).

sidered suitable for a general stimulant in Neurasthenia.

There are a few other stimulants which need only detain us a minute. The phosphorus group has already been considered, and we have already stated that the inorganic forms are only slightly absorbed; of recent years increasing doubts have been thrown on their efficacy. Alcohol, although it possesses many valuable characteristics both as a food and drug, is not an ideal stimulant for neurasthenics, partly on account of the ready formation of a habit by people who are chronically tired and languid, and partly because its action on digestion is sometimes harmful.

Arsenic, camphor, belladonna, and iron salts, are all useful as general "tonics," and have their fields of usefulness in the drug treatment of these patients.

2. SEDATIVES.

For many years now—in fact, since Neurasthenia has been recognised as a definite malady—sedatives have been generally regarded as a necessary part of the drug régime. And, as this disease is characterised by undue irritability of the nervous system, by a vast number of sensory disturbances, and by feelings which in themselves prevent repose, it is scarcely to be wondered at that physicians have agreed that some general sedatives were necessary.

Such a decision seems inevitable, and few indeed who have had any experience of Neurasthenia will deny that—at all events, in the initial stages—sedatives are almost a necessity. Now, so long as we confine the use of these drugs to the lowest dose and to the shortest time, there can be little objection to their administration,

and it is only when they are prescribed month after month, with perhaps no attempt at other and more permanent treatment, that we are justified in questioning the correctness of such a method.

Two facts should be remembered when we consider this custom: first, that every drug, when given over long periods, establishes a tolerance which necessitates increasing doses; secondly, that there is a reaction to the action of every drug, and that, while some sedative result may be obtained at first, there is a secondary result which in part neutralises the initial action. Thus, unless we keep the patient almost continually under the influence of the drug, the intervening intervals must consist of times when the reaction is present and when the unfortunate sufferer is experiencing "the swing of the pendulum."

In spite of these objections, which it seems necessary to emphasise on account of the careless and meaningless manner in which such drugs are sometimes prescribed, sedatives are of the greatest value in Neurasthenia. Provided they are administered with care, in the form most suitable to the individual case, and their use discontinued directly such a course is possible, we can see little real objection to their exhibition.

Of sedatives, the bromides stand pre-eminently first. The potassium, sodium, and ammonium salts are the most usually chosen, although some prescribers report good results from the bromide of strontium, also from hydrobromic acid. It is stated* that all the salts of bromide are converted into sodium bromide in the stomach; that they circulate in this form and leave the body in all the excretions.

* Savage, *Textbook of Pharmacology and Therapeutics*, edited by W. Hale White, p. 300.

The bromides are direct sedatives to all parts of the nervous system, but their action is most marked upon the more highly developed parts, particularly the cortex. The general depression of activity affects the motor, as well as the kinæsthetic, areas, and reduces physical as well as psychical sensibility. Spinal depression is likewise produced, and reflexes are diminished.

In ordinary doses by the mouth, the circulation and respiration are unaffected, but digestion sometimes suffers by the liberation of bromine by the action of the gastric juice.

The use of the bromides over long periods may produce a train of symptoms to which the name *bromism* has been given. These consist in muscular weakness, lowered sensibility, foetid breath, indigestion, loss of appetite, anæmia, and mental dulness. Skin eruptions, acneiform in character, may also make their appearance.

In Neurasthenia, the bromide group is invaluable while "irritability" exists. This is usually in the initial stages, and the use of these drugs should be discontinued at the earliest possible opportunity. Small doses are frequently all that is necessary to banish the acuteness of the symptoms, and this is what should be aimed at rather than the marked diminution of general sensibility of the cortex which large doses produce. Five or ten grains every three or four hours for a few days, alone or combined with some mild stimulant, is often of the greatest help in the early stages of treatment.

Many proprietary preparations of the bromides are on the market, and it is claimed for some of them that they are as efficacious as the natural salt without the bad effects upon the skin and digestion. Some of these

certainly appear to be better borne by the neurasthenic than the ordinary salts, and to achieve their object without unpleasant sequelæ.

Bromides are often prescribed in company with small doses of arsenic, especially if their use is to be continued over long periods, with the object of preventing the occurrence of bromism. Many prescribers prefer the sodium or ammonium as being less depressing than the potassium salt.

In any case, when prescribing this drug to neurasthenics, we should remember the following maxims:

1. The initial dose should be small, and increased as indicated, rather than a large dose to commence with reduced when the physiological result is produced.

2. The exhibition of bromides should be regarded as a temporary measure, and should be replaced by treatment which is likely to produce permanent benefit.

3. It is better to prescribe bromide in a mixture containing other ingredients designed to prevent the disagreeable effects which this drug sometimes produces, rather than the salt by itself. If we employ the dilute acid (ac. hydrobromic. dil.) we can combine caffeine citrate, or small doses of quinine, to avoid over-depressing the vital functions.

4. Finally, the bromides are of little use where pain is present, their *métier* being to soothe the over-excitabile cortex, to abolish the seething panorama which so often keeps sleep from neurasthenics, to reduce hypersensitiveness, and to regulate the stimuli which the central nervous system, in keeping with the sympathetic, supplies to the body.

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Before closing this chapter, let us say a few words as to the use of hypnotics. The bromides are important members of this group, and produce fewer bad effects than most drugs of this class. Another favourite drug to employ is belladonna. This has a local as well as a general action, and, just as its administration is so successful in the acute stage of exophthalmic goitre, so does the drug exert a beneficial action in the restless and irritable stage of Neurasthenia. It may be remembered that it is a direct stimulant to cardiac action, as it depresses the actions of the vagi. It is, however, an intestinal stimulant, in small doses, probably due to paralysis of the inhibitory fibres of the splanchnic nerve. In small doses, also, it stimulates the vasomotor centre and raises the blood-pressure.

This drug has for many years been used in the treatment of epilepsy as an adjuvant to bromide. In a similar manner, when combined with this latter substance, it is a useful ingredient of a sedative prescription.

Another sedative which is useful is trional. Although mainly known as an hypnotic, small doses given at frequent intervals have for some years been utilised in the treatment of spasmodic nervous affections (*e.g.*, chorea, habit-spasm, etc.), and it is in this manner that it should be prescribed in Neurasthenia. A few grains given in hot fluid three or four times a day for a few days is frequently successful in "steading" the nervous system.*

Another hypnotic which may be employed in this manner is chloral, and its derivative chloralamide (chloral formamide). The latter combination is the

* "Dial" is a derivative of barbituric acid, which is an excellent hypnotic.

better in this connection, but it is not always efficacious, as it is so slowly absorbed, unless administered in alcohol—*e.g.*, in a glass of hot brandy and water.

Pulsatilla (*Anemone pulsatilla*) is a general sedative, which must be mentioned as exerting a useful action in Neurasthenia. It is particularly suitable for neurasthenics who lead sedentary lives, for overworked business men, and for all those who do not indulge in fresh air and exercise. It is reputed to have a marked sedative effect on the genital organs. Although it is little known in England, it is somewhat largely used on the Continent and in America.

These drugs have been chosen more as examples than because they are necessarily the best sedatives. The number of such drugs which possibly might be suitable in this way is legion: and it is obviously impossible to describe even one-tenth of these preparations. Again, each individual patient demands separate remedies, and in no case is it possible to dogmatise on this subject, and describe the ideal sedative.

To sum up the use of drugs in Neurasthenia, we may state our conclusions as follows:

1. The use of drugs is undoubtedly secondary in importance to other forms of treatment.
2. Drugs possess two actions (in this connection more especially)—a pharmacological and a psychological.
3. The drugs we have described have been regarded in this chapter from the former of these standpoints.
4. It will be agreed by most observers that so far as the treatment of Neurasthenia is concerned, drugs are of vastly less importance than other methods of treatment.

CHAPTER VI

CLIMATE AS A THERAPEUTIC AGENT

IN this chapter we propose to discuss the effects which climate produces upon Neurasthenia. We shall discuss the effects of climatic conditions as a whole; and deal briefly with some of the better-known health-resorts and spas.

The effect which climate has upon Neurasthenia is often very marked. Most individuals and many disorders show definite reactions to changes of locality; but this is especially true for the neurasthenic.

Speaking broadly, we have to consider climatic conditions as consisting of the sum total of those influences which act upon the life of organic beings through the air, soil, or water of a district. We are not concerned here with the influences which climate may exert in health (except in so far as comparing them with the same influences acting under abnormal conditions), but rather with the therapeutic application of climate to Neurasthenia.

A climate has to be considered from five standpoints—namely, its composition, its temperature, its sunlight, its humidity, and the amount of wind.

The first of these considerations depends upon the ratio of a number of individuals to a given area, and the relative percentage of carbonic acid and oxygen, and the proportion of organic material. Of the latter,

bacteria are, it is needless to say, the most important constituent. Health, particularly pulmonary health, depends primarily upon an adequate supply of oxygen, and a low percentage of bacteria in the air.

Secondly, the question of temperature is of the first importance. But it must be remembered that humidity enormously varies the effect of temperature upon the human organism. Whereas dry cold is stimulating and beneficial both to the circulation and physical functions—*e.g.*, assimilation—moist cold is unsuitable to those unaccustomed to it. It tends rather to exaggerate than to ameliorate chronic disease, and to increase irritability. Dry cold stimulates the circulation, promotes a feeling of well-being, raises arterial pressure, and encourages metabolism.

Sunlight, whether associated with heat or cold (*e.g.*, Egypt or Switzerland), has an invigorating effect upon the body, and is a potent destroyer of bacteria. Absence of sunshine over a long period, such as is experienced in England in the winter, is usually associated with an increase in illness.

Dampness, as we have just said in speaking of temperature, must be considered mainly from the standpoint of rainfall. In those resorts where the rainfall is heavy, out-of-door life for the invalid is, of course, curtailed. In certain climes, however, the rainfall occurs regularly and in large quantities, so that the "rainy season" can be gauged, and such resorts avoided at these times. Moist climates are by no means injurious to the majority of neurasthenics, although they are harmful in those cases complicated by such diseases as rheumatoid arthritis and bronchitis.

Lastly, the amount of wind which is usually experi-

enced at health-resorts is of importance. Strong winds are depressing, although, as Poore has shown, they are helpful as phagocytic agents.

Now, how can we apply these conditions of climate to neurasthenic patients, and utilise favourable resorts as a therapeutic agent? In every convalescence, with few exceptions, a change of air is regarded as requisite to complete the cure; but such changes are often prescribed rather loosely and without due regard to the five points detailed above.

In Neurasthenia we have usually to postpone sending our patients for a change of air until definite improvement has manifested itself, and then we must choose the locality with care. This rule is, of course, open to exception, for under some climatic conditions the amelioration of established Neurasthenia is difficult, if not impossible.

According to authorities upon the subject of climate and nervous exhaustion, certain weather conditions are admittedly favourable to the progress of the malady. Beard regarded an unduly dry climate as largely productive of Neurasthenia, and he attributed the frequency of this disease in the United States of America as largely due to the dryness, as well as the extremes of heat and cold, prevalent in the New World. He says: "The element of dryness in the air, peculiar to our climate as distinguished from that of Europe, both in Great Britain and on the Continent, is of the highest scientific and practical interest." Again, "Dryness of the air, whether external or internal, likewise excites nervousness by heightening the rapidity of the processes of waste and repair in the organism, so that we live faster than in a moist atmosphere."* Beard proceeds to con-

* *American Nervousness*, pp. 142-149.

trast life in Europe with that in America with reference to the outdoor life led in the former, and the mildness of the climate; and he considers that "dryness of the air is one cause of the long-observed leanness of the Americans as compared with the Europeans." In very dry climates, such as the Rocky Mountains possess, Beard maintains that electrical influences play a large part in the physical results produced, as the human body becomes a "lightning-rod, liable to be made a convenient pathway through which electricity going to or from the earth seeks an equilibrium."*

Again, strong winds are admittedly unfavourable in Neurasthenia, as they are irritating to an already excitable nervous system. Speaking of the winds which are common on the Pacific coast, Beard says: "During the prevalence of these winds, which may last several hours or days, fruits and foliage, especially on the side towards the wind, tend to shrivel and wither; the grass, likewise, shows the effect of the same influence, and human beings and all animals are unwontedly irritable and nervous. Even in the east, our neuralgic and rheumatic patients, during and just before thunderstorms, are often suddenly attacked by exquisite pains that at once disappear with the appearance of fair weather."†

Another factor to be borne in mind in selecting suitable climates for neurasthenics is that individual symptoms, such as dyspepsia and insomnia, will often forbid a climate which might be suitable for the general condition. Sleepless patients should on no account be sent to high altitudes, to the sea, or to windy localities; while neurasthenics with gastro-intestinal symptoms must avoid long sea-voyages, with their endless mono-

* *American Nervousness*, p. 147.

† *Ibid.*

tony of diet, the frequent absence of fresh meat,* and the lack of adequate exercise.

Generally speaking, the neurasthenic, with his depressed vitality, his mal-assimilation, and his fleeting aches and pains, requires a climate which is bracing, without being over-stimulating, and which encourages metabolism without upsetting the digestive mechanism. Such a choice must, of course, depend largely upon the time of the year, the prevailing weather, and the individual case. Bracing climes such as the East Coast of England, Switzerland, and Norway are often found to be beneficial at those times of the year when other resorts are over-warm. I have frequently been impressed with the extraordinary effect which is produced by a change from a relaxing or crowded place to a bracing clime. The entire organism appears to take on a new lease of life: the appetite improves, digestive disturbances disappear; fatigue is replaced by energy; phosphaturia ceases; and the symptoms complained of become a thing of the past.

In the relaxing air experienced at the termination of the summer, the exhausted brain-workers require change, and this very change often saves them from becoming neurasthenics. For these people nothing is so good as a bracing climate, and the invigorating effects of sea-air, associated with suitable exercise in the open, frequently work like a charm.

In some such way as this must we regard convalescent neurasthenics. There are individuals who require a stimulant to "brace up" their jaded nerves, to replace mental *ennui* with fresh interests, and to put the physical

* This is not so true for steamship voyages, with their frequent calls at ports.

system in an environment where all the elements are favourable to recovery.

In selecting a climate for neurasthenic patients, we must take into consideration individual symptoms as well as generalised asthenia. We are often forced, from reasons of finance, to recommend resorts near home, although we might reasonably expect better results from a Continental journey or a sea-voyage.

Where we are dealing with neurasthenic patients, whose digestions are reasonably sound, who sleep well, and are really cases of exhaustion without definite localising symptoms, our choice of climate is wide. In Britain, the East Coast is beneficial, except in winter and spring, and almost any seaside place along this coast is suitable. Of these, commencing north, we have Nairn, North Berwick, Whitby, Filey, Hunstanton, Cromer, Yarmouth, Aldeburgh, Felixstowe, Margate, and Ramsgate. Any of these coast-towns is suitable for simple uncomplicated cases of nervous exhaustion: the air is humid, moderately still (except in winter and spring), and the general climatic influences bracing.

On the South Coast, Dover, Folkestone, Sandgate, Hastings, Eastbourne, Brighton, Littlehampton, Bognor, Southsea, Cowes, and Shanklin are all to be recommended. Farther west, however, the air is more relaxing, and Bournemouth, Weymouth, Torquay, and the resorts on the south coast of Devonshire and Cornwall, are too relaxing except in the colder weather. Littlehampton and Hastings are especially suitable, as the former is an attractive town, not too large, and the latter lies well sheltered by the Downs immediately behind it.

The north coast of Devon and Cornwall offers suit-

able resorts, in particular at Newquay and Bude, Ilfracombe and Lynton; while Wales possesses Tenby, Aberystwith, Llandudno, and Barmouth, all places which suit the neurasthenic admirably.

For cold weather, of the places just enumerated, Hastings, Bournemouth, and Torquay are well protected and particularly windless, and they are suitable resorts for the sufferer from nervous exhaustion. All these marine resorts are, of course, of considerable humidity, and, according to most observers, are favourable to metabolism in general and nervous processes in particular.

If the circumstances of the patient allow us unlimited choice, we may select either a sea-voyage or a change of not less duration than one to three months abroad. Of the former, the favourable influences are warmth, equability, and atmospheric humidity; the disadvantages being the necessary absence of exercise, the monotony and the sameness of the dietary. For mild cases, a short voyage lasting a few days only, to some place which is particularly suitable—*e.g.*, Egypt—is perhaps the simplest and most efficacious course to advise.

For more serious cases, where the malady has been in action for some considerable time, a longer voyage, if considered suitable for other reasons, is probably the wisest plan. A voyage to Australia, or to the West Indies, or even to South America, is frequently prescribed; and the disadvantages connected with prolonged journeys of this nature can be mitigated to some extent. Thus, deck-games can be insisted upon, to avoid to some extent the lack of exercise; the food can be regulated by the physician to suit the altered condi-

tions which rule on board ship; and, if the ship is of moderate size, suitable companionship can usually be arranged which will help to prevent *ennui*.

The convalescent neurasthenic with unimpaired digestion and good sleeping powers will probably derive benefit from bracing air such as is experienced in the Upper Engadine. Although the atmosphere here is dry, it is still, sun is plentiful, and its invigorating properties compensate for the absence of moisture. As Forster says, "The beneficial effect of the climate must be attributed to the combined action of altitude and cold quickening the metabolism of the tissues and increasing their resisting and reparative power." Davos, St. Moritz, Caux, Les Avants, and Grindelwald, are among the Swiss resorts, which, although generally recommended for diseases of the lungs, are also suitable when an invigorating atmosphere is indicated.

Florence is an excellent town for general Neurasthenia. It is cold and rather windy, but sunny and bright. The same may be said for Rome, although the climate is damper at certain seasons of the year. There is also the additional factor of the cold "tramontana," which is the prevailing wind, while the moist "sirocco" is occasionally experienced. The relative humidity of the winter is 72 per cent. Finally, although the town itself is now in a satisfactory sanitary condition, the surrounding country is malarious, and "Roman fever," occurring in the swamps, is still not altogether a disease of the past. Added to this the inevitable sightseeing which a town like Rome, with its historical associations, makes almost inevitable, renders it not altogether desirable as a health-resort.

For similar reasons, Naples is not a very suitable

climate for invalids. It is much exposed to the cold "tramontana," and has a heavy rainfall, especially in November and December.

Egypt is eminently suitable for the depressed neurasthenic. The climate makes it, in many ways, an ideal winter resort. It is dry and exhilarating, being sunny and warm in the day, but it never becomes "close" and relaxing. From the middle of November to the beginning of April, the climate may be said to be ideal; and the atmospheric conditions of Upper Egypt rival almost any high mountain valley, and are less subject to variations. The climate is dry, which renders it unsuitable for some cases of Neurasthenia, as dryness of the air increases the processes of waste,* and has been shown to be unfavourable to patients suffering from nervous exhaustion. Nevertheless, the open-air life which is possible in such a fine climate as this compensates for the lack of humidity, and, in many cases, this is an even more important consideration than the moisture of the air.

Tangiers possesses a warm, moist climate, with a mean temperature of 57° to 62° F. in the winter, and as its situation renders it easy of access it is a suitable winter resort in which neurasthenic patients may revive. Although it lacks invigorating air, sea-bathing is possible all the year round, but prolonged residence here is not altogether desirable, as the sanitary condition of the town, the dirt and bad smells, are not conducive to health.

In March and April, when so many British health-resorts and seaside towns are rendered unpleasant by the strong winds, Algiers has much to recommend it.

* See Beard, quoted p. 279.

These months are usually dry, although the air at Algiers is always moist, the mean annual rainfall being 32 inches. But in March and April wet weather is often absent, and the winds are not so troublesome as they are apt to be at other times of the year. Considered from all standpoints, therefore, the climate of Algiers exerts a "tonic, soothing, and bracing influence,"* which is very helpful in restoring the neurasthenic to health.

There are several disadvantages which are attached to the Riviera as a resort for neurasthenics. First, there is the large amount of social life which is always present in the season; secondly, appetite is often upset in neurasthenics by residence at such resorts as San Remo and Mentone; and thirdly, sleep is often capricious for these patients on the Riviera. Corsica is a climate which has many advantages for sufferers from nervous exhaustion. It is more humid than the French Riviera, has an average winter temperature of 54° F., and, being surrounded on the north and westwards by high mountain ranges, is usually warm. Ajaccio is the only really available winter resort, and is easily reached from Marseilles or Nice.†

Madeira is typical of a mild oceanic climate, sedative and moist, but to some extent relaxing. It is suitable to those possessed of a feeble circulation which is unable to bear more bracing climes, but is not sufficiently stimulating for the majority of neurasthenics. Where other ailments are present or where the patient is aged, Madeira is frequently recommended, but it lacks the exhilaration of other maritime climes, which,

* See Burney Yeo, *The Therapeutics of Mineral Springs and Climates*, p. 629.

† *Ibid.*, p. 649.

while no more exposed to winds, yet possess a more bracing atmosphere.

Sufficient has now been said to enable some opinion to be formed as to the choice of a "change of air" for neurasthenics. We will summarise by the following precepts:

1. Where the power of reaction is marked, choose a bracing or moderately bracing climate.

2. If the power of response may be gauged as small, a "medium" climate, such as Egypt, or a moderately bracing marine climate, protected from wind, as Tenby, should be selected.

3. Patients with insomnia and digestive disorders should not be sent to high altitudes, neither should they be ordered sea-voyages. The Riviera also possesses many disadvantages for this class of patient.

4. It is a wise plan to commence "convalescent treatment" by a change to some locality where only small social activity is usual, and then prolong the changes by returning through such a place as Egypt. In this way, interest is aroused when physical health has been restored, and the patient should return with mind and body recovered.

5. As a rule, spas and watering-places are undesirable, as they constantly convey suggestions of illness to which the mind of the neurasthenic is especially susceptible.

6. Localities subject to strong winds, particularly such varieties as the "tramontana" and the "sirocco," or those laden with dust, are very irritating, and should be avoided as health-resorts for neurasthenics.

CHAPTER VII

THE TREATMENT OF NEURASTHENIA BY PSYCHOTHERAPY

INTRODUCTORY.

To understand the utility of psychotherapy in the treatment of functional disturbances, and particularly of that variety we are now engaged in studying, we must commence by a brief survey of what constitutes psychotherapy.

Psychotherapy is the name given to the treatment of disease by mental methods: this definition is sufficiently wide to include the several varieties which we shall shortly be studying.

The effect of suggestion is inseparable from all medical practice—indeed, from everything in the world around us. The term “ suggestion ” is, however, kept for a definite process, whose meaning will be clear as we proceed.

SUBDIVISIONS OF PSYCHOTHERAPY.

For our present purpose we can discuss psychotherapy under four headings—suggestion, persuasion, analysis, and re-education. All psychotherapeutic procedures fall into one or other of these groups.

Suggestion.

Suggestion has been defined in a variety of ways: "as the communication from one person to another, otherwise than logically, of some proposition in such a way as to secure conviction and practical obedience"; "as being synonymous with the influence of our whole environment, or with that excited by any presentations which are unconsciously assimilated"; "as the blocking up of all association tracks, except the one selected for treatment"; "and as a moral impression or an invasion of the consciousness by a presentation, but without criticism or opposition."*

For its use in medicine, however, these definitions are too wide. We require a definition which will describe its purposeful use as a therapeutic agent.

Such a one is the following: "Suggestion is a process of communication resulting in the acceptance with conviction of the communicated proposition, in the absence of logically adequate grounds for its acceptance."† The conditions favouring the action of suggestion, as above defined, are:

(i.) States of relative dissociation—*e.g.*, sleep, hypnotism, hysteria, fatigue, etc.

(ii.) Deficiency of knowledge (*i.e.*, critical power) or lack of organised knowledge on the subject under discussion.

(iii.) Impressive character of the source of suggestion.

As an example, if a statement is made to a person

* Suggestive "Medicine," by the present writer, the *Practitioner*, October, 1912.

† *Social Psychology*, by W. McDougall (Methuen), p. 97.

in the state described under (i.), and this statement is received with conviction, it is the result of suggestion. The action of suggestion is rendered more easy by (ii.) and (iii.). The absence of "logically adequate grounds for its acceptance" marks the difference between the acceptance of a statement by a person where such a statement is supported by the evidence of his senses, and where it is accepted without such substantiation or even in the presence of conflicting evidence. Thus, if I tell a patient that he is better and this statement is accepted, without confirmation from his own feelings, the result has been achieved by suggestion.

Waking Suggestion.—Suggestion, when employed purposely in medical practice, has been divided into two kinds—waking and hypnotic. In the former variety an endeavour is made to influence the patient without the abolition of consciousness. The method adopted is simple, and consists in placing the patient in the most suitable surroundings—*i.e.*, on a comfortable chair or couch—and, when he is relaxed and passive, the operator proceeds to deal with the symptoms from which he is suffering one by one. He deals with, let us say, the sleeplessness, and informs the patient that he will sleep better after the treatment; places his hand on the abdomen and repeats his suggestion as to digestion, intestinal action, etc., and endeavours to "suggest" health and healthy functioning to his patient. The treatment lasts from one quarter to one half hour, and the patient is instructed during this time to let his "mind wander," and to pay no attention to the words of the physician. In this manner, by distracting the conscious mind, the "suggestions" of the operator are

directed into the unconscious, or, as some prefer to call it, the subconscious.*

Hypnotic Suggestion.—Hypnotic suggestion may be regarded as suggestion administered during an artificially produced sleep. In this method, the patient is directed to gaze fixedly at a bright object (Braid's method); he is told to relax all muscles and to rest his mind and body; and as he begins to feel sleepy, strong and confident statements are made by the physician that he is beginning to feel drowsy, his eyes are becoming heavy, he will soon be asleep, etc.

When a state of mental dissociation is produced—that is, when he is no longer acutely aware of his environment—he is said to be “hypnotised.” This is the stage at which “suggestions” are administered, and, as they are not subjected to the criticisms of consciousness, they are accepted, even in the absence of logically adequate grounds for their acceptance. These “grounds,” if present, are situated in the conscious mind, which is during hypnosis in abeyance (dissociated). As an example, the symptom which is claiming the patient's attention in his ordinary life is not active during this treatment, and therefore cannot act in opposition to the statements made by the operator. Therefore these statements are accepted in the absence of logically adequate grounds for their acceptance, and furnish an example of suggestion, according to our definition.

* For a full description of the methods of suggestion, see *Treatment by Hypnotism and Suggestion*, by C. Lloyd Tuckey (sixth edition, Baillière, Tindall and Cox); also *Hypnotism, its History, Practice, and Theory*, by J. Milne Bramwell (Grant Richards). Compare also Professor Forel's work on *Hypnotism*, translated by H. W. Armit (London Press Co.).

From the practical standpoint, it will be obvious that the suggestion made under hypnosis is more likely to be efficacious than that made in the waking state, if only for the reason that the way into unconsciousness is clearer. Another reason is furnished by the doctrine of dissociation, which teaches that symptoms of nervous disorder owe their origin to a mental dissociation, and that it is this "splitting of the mind" which accounts for many or all the symptoms of these disorders. It follows from this that by an "artificial dissociation" of the mind, such as is present during hypnosis, we are getting nearer to the stronghold of the symptoms.

In the summary at the close of this chapter we shall review the relative value of these methods, and we shall endeavour to show that they all have their fields of usefulness.

Persuasion.

While treatment by suggestion may be likened to the implanting of one idea in such a manner as to secure its acceptance, in the absence of logically adequate grounds for its acceptance, treatment by "persuasion" belongs to a different category.

Persuasion is the name given to a method of treatment which consists in reasoning with the patient as to the cause, nature, and mechanism of his symptoms. When we subject this method to a careful scrutiny, we can see that the main difference between suggestion and persuasion is this: that in the former, no use is made of the reasoning powers of the individual, but the idea whose acceptance is desired is placed in the patient's mind with as much force as possible, while in the latter the idea is strengthened by logical factors, and then offered to the patient's mind for acceptance.

The initial procedure differs in treatment by suggestion and treatment by persuasion; but once the idea is accepted, the result is the same.

Dubois* has elaborated this method in great detail and described how much benefit his patients have derived from the use of "persuasion." Déjérine† likewise advocates its use, but the believer in analysis of underlying psychological mechanism will have none of it. Dubois lays stress on the fact that no element of suggestion enters into the cure; but that the results are achieved by the reasoned acceptance of facts.

Psychological Analysis.

In the two former methods, no attempt is made to trace the chain, link by link, from the original cause of the symptom, or symptoms, complained of to the condition existing at the time the patient presents himself for advice. This is the main difference between the two methods we have already described and the method known as psychological analysis.

I have not made use of the term employed by Freud—viz., psycho-analysis—because, although all psychological analysis employed in the treatment of disease is based upon Freud's system, various alterations have crept in, in the hands of other operators; and, unless we are going to describe in this section only those methods employed, and views held, by the Viennese school, we have no right to describe this method as psycho-analysis. While admitting that all psychological analysis owes its inception to Professor Freud, and that the mechanisms elaborated and described by

* *The Psychic Treatment of Nervous Disorders.*

† *Psycho-Neuroses and Psycho-Therapy.*

him have shown workers in this field how they can trace symptoms to underlying causes, we are bound to consider also views held on this subject by other authorities, and so we describe this method as psychological rather than psycho-analysis.

The work of analysis is based upon the conception of an "*unconscious mind*." The mind is divided into two regions, the conscious—the mind of the senses, the "waking" mind, the mind of our everyday life, the mind of the present (in the temporal sense)—and the unconscious, which, besides being the primitive mind, the mind of our instinctive tendencies, also serves as a receptacle in which the memory of unpleasant events can be placed. The mechanisms described by Freud, and elaborated and enlarged upon by others, help us to understand the manner in which nervous and mental diseases are produced, so far as the psychical is concerned. Such mechanisms as "repression" teach us that when an event is associated with painful emotions of an extreme degree, the formation of a *complex* results. Now, unconscious ideas tend to cluster into groups around a central nucleus, so to speak, and this (when in the unconscious mind) is spoken of as a "complex." For a similar collection of ideas *in the conscious*, Freud makes use of the phrase "constellation of ideas." The complex, according to this school, has energy; and it is this energy which enables it to find expression in the habits of the individual. A complex may be normal—our hobbies are regulated by complexes—or abnormal, and then they owe their existence to a "repression." The latter variety makes use of its energy to try and burst the bonds which constitute the repression; the results of this striving make their appearances as symptoms.

To understand this doctrine, we must realise that the complex has become a complex (*i.e.*, has been repressed) because it conflicts with some of the contents of the individual's conscious mind. This implies that phenomenal consciousness refuses to admit the existence of the subject in question; to provide an exit from the resulting "conflict," repression takes place and the distasteful subject becomes squeezed out of consciousness into the unconscious, where it settles as a "complex."

The whole subject of which Freud's mental mechanisms form the foundation is far too long and too complex for discussion here, but perhaps sufficient has been said to show that the work of Freud has revolutionised the work of the psychotherapist, and has produced a method of treatment—to wit, analysis—which enables the physician, *in selected cases only*, to delve into the patient's mind in search of the origin of a symptom in a manner which was, for practical purposes, impossible prior to his work. For the work of the analyst is directed to discovering in the patient's unconscious the complex or complexes responsible for the disorder present; to reveal these to the conscious (*i.e.*, to make them conscious), when the symptoms upon which they depend disappear.

A very brief survey of the technique of analysis will serve our purpose here, as it is not widely applicable to Neurasthenia.

The following methods are utilised for "tapping" the unconscious: hypnosis, crystal-gazing, free association and word association, and the analysis of dreams. The first method as a means of revealing complexes has largely been discarded, owing to the difficulty in producing a satisfactory state of unconsciousness; the

second is only utilized after other methods have failed, while the "royal road to the unconscious" lies in the analysis of dreams. A list of the works dealing fully with the theory and technique of psycho-analysis is given in the Bibliography.

When analysis has revealed the complexes underlying the symptoms, the patient enters the stage of "transference"—*i.e.*, the analyst commences to figure largely in his mental processes; the patient is transferring his complexes to the analyst. The final stage is described as the "dissolution of the transference," wherein the patient is relieved of his dependence upon the physician, and is set upon his own feet.

According to the psycho-analytic school, Neurasthenia belongs to the neuroses, and not to the psychoneuroses; the distinction lying in the fact that the neuroses owe their inception to the present or comparatively recent mental life of the patient, while the psychoneuroses are due to "partially or completely forgotten incidents or phantasies of early childhood, whose persistence in symbolic form into adult life, or the reactions against them, or a compromise between the phantasies and the reactions or their symbols, appears in symbolic form, which may even itself be symbolised."*

It follows from this that the analysis of a neurosis is a shorter and more simple proceeding than the analysis of a psychoneurosis. In fact, the analytic school claim that analysis is the only real cure. Nevertheless they admit that it is applicable to only a limited number of cases, and that the large majority of neurasthenics must find help in other therapeutic procedures.

* *Mind and its Disorders*, by W. H. H. Stoddart, third edition, p. 229.

Re-education.

" Re-education " has been used in two different ways. It is used to denote the rearrangement after an analysis, and also for re-education when applied to the symptom itself. Its first meaning need not delay us here, as its use in this respect will be obvious.

Re-education, when applied to the symptom itself, denotes a method of " mental training " in which, after a detailed history of the case has been obtained, every effort is made to discover psychological antecedents, which may have a more or less direct bearing upon the case. These are thoroughly discussed from every standpoint, so that the patient is made to see past events from fresh angles, and to regard these events in a new light. When all the available conscious material has been discussed and examined, attempts to delve into the unconscious memories can be made by such devices as hypnosis, crystal-gazing, etc. When this stage is reached, and unconscious memories have been obtained, the relationship between the disagreeable memories and the symptoms, from the psychological standpoint, is shown to the patient, and the groundwork upon which the disorder is founded is laid bare.

It will be obvious that, in this sense, re-education is a system of training the patient to regard past events in a normal manner; and that it is based upon the assumption that unpleasant memories, when not assimilated adequately, can and do form the basis of subsequent disturbances. Its close relation to other psychotherapeutic procedures will be obvious; and it will be seen that it is a near relative of psychological analysis.

PSYCHOTHERAPY AND NEURASTHENIA.

We will now discuss the utility of psychotherapy in the treatment of Neurasthenia.

We commence from the assumption, which no thoughtful reader will deny, that every patient who visits a doctor is, in some manner, affected by the reaction of his psyche in the treatment advised. This is a truism, but we must make it clear that so much is granted before we proceed to discuss the purposeful use of mental therapy in this disorder. It may be that the patient is so severely disturbed mentally as to make it impossible for his mental dispositions to be affected from without; or, in milder cases, he may be impervious to the suggestions of the doctor. But the majority of patients present themselves in an attitude of expectant attention; they are prepared to listen to advice and to act upon it, if it appeals to their reason.

This applies to the neurasthenic patient whose disorder is in part mental (some would have us believe that it is entirely mental); and it makes it obvious that the first step in its treatment is a reasoned explanation of the malady. This is rendered all the more necessary by the false ideas as to the origin of functional disorders held by most of the laity. By most people the psychogenic origin of Neurasthenia is taken for granted, and the great majority of sufferers firmly believe that their mental disturbances are entirely secondary to physical abnormalities. For this reason, then, a brief description of the mechanisms which underlie this disorder is essential before commencing treatment, in order that the patient's mind may assimilate this view-point before treatment is instituted.

Particular stress should be laid upon the part which the patient is called upon to play in any subsequent treatment, for whatever form of therapy is decided upon, it must be emphasised to the patient that—

1. He must co-operate by using his will-power.
2. Implicit obedience to any instructions is a *sine qua non*. Any treatment in which these two provisions are overlooked is in serious danger of capsizing.

As regards the choice of psychotherapeutic procedures in these patients, it is essential to be guided by circumstances. Theoretically, analysis is the ideal method, because it traces all mental factors back to the *fons et origo mali*. But its limitations are many. It is a very lengthy procedure; it costs a good deal of money; it is only suitable in certain cases; and it requires a considerable experience before the technique is properly mastered. From the standpoint of practice, then, we shall find that only a limited number of neurasthenic patients are able to undergo this treatment.

Suggestion, in one form or another, is a valuable asset to the medical man called upon to treat these cases. If the patient is anxious to be cured, and should prove to be a good "hypnotic" subject, the benefit which accrues is often very considerable. Here again we find that several desiderata are requisite before this method of psychotherapy can be utilised; and the reader may ask, what if the patient does not come up to this standard?

We have already said that every pill given by the doctor is, or should be, gilded by suggestion; and suggestion under hypnosis may be regarded as suggestion administered under the most favourable conditions.

In hypnotic suggestion the patient's standard of intelligence is of secondary importance, which is more than can be said of treatment by analysis. In this latter method a high degree of intelligence and co-operation is an essential.

In practice, then, " suggestion " for a psycho-physical disorder such as this is an admirable treatment, but must be prescribed in company with any other method designed to help the physical system to regain its normal tone.* The physician must bear in mind that its power is often limited, and that a temporary improvement in functioning is not sufficient justification for its frequent or prolonged use. Rather must more radical treatment be advised to obtain a permanently higher standard.

Treatment by persuasion is lengthy, and demands, like analysis, time and patience on the part of the doctor. Much good will accrue from its employment in suitable cases, but, in the present writer's experience, its utility is limited.

In a word, then, most physicians of experience in the treatment of this class of patient evolve their own method, which is not a hard-and-fast rule, but which consists usually of a combination of one or more of those outlined above. Experience shows that the patient and not the disorder requires treatment; that patients react in a varying manner to the different methods; and that, owing to the circumstances in which

* I was consulted recently by a lady suffering from Neurasthenia, who requested hypnotic treatment for " indigestion." Examination revealed a dilated and dropped stomach, and this patient was disappointed when I advised her to adopt certain physical methods before she consulted a hypnotist. I doubt whether she adopted this advice, because she had made up her mind to be treated by hypnotism, and *voilà tout !*

a patient is placed, it will often be necessary to adjust or modify the treatment.

The chief point to be made is this: adapt the treatment so that the mental workings of the patient help, and not hinder him in his life; encourage will-power and optimism, discourage egoism and a hypochondriacal introspection. To sum up: place the patient upon his own feet with his interest stimulated upon affairs outside himself, and the object of any treatment will have been obtained.

CHAPTER VIII

TREATMENT BY ELECTRICITY

ELECTRICITY, in some form, is being widely used in the treatment of nervous exhaustion. The popularity which electro-therapeutics has achieved during the latter part of the nineteenth century and since the dawn of the twentieth, more especially in the treatment of various nervous disorders, makes a detailed study of its place in the treatment of Neurasthenia desirable.

Many observers believe that the beneficial effects which so often accrue from a course of electrical treatment are to be attributed largely to the suggestive environment which is established by the imposing instruments, and the sensations so often experienced during the passage of the current. Moëbius, for example, considers that four-fifths of the successes obtained by electro-therapy are due to the " suggestions " initiated by the elaborate apparatus, the mysterious nature of the treatment, and the stimulation to the faith of the patient.*

Again, Ballet says: " In the front rank of these therapeutic measures that are capable of acting indirectly on the patient's mind must be placed electricity in its various modes of application."† On the other hand, Lewis Jones considers that vigorous stimulation by the electric bath or other general electrical stimulus

* Moëbius, *Schmidt's Jahrbuch*, 1889.

† *Neurasthenia*, p. 187.

" has more effect upon neurasthenics than any other mode of treatment ";* and many other observers who have had large experience of the treatment of nervous exhaustion by electricity are in agreement with him. Whether the chief effects are due to indirect psychotherapy or to somatic changes produced by the passage of the current is still a debatable point.

We are mainly concerned in this chapter with the various forms in which electricity is employed to counteract the generalised asthenia, as well as the individual symptoms of Neurasthenia. Space does not permit a detailed description of the principles underlying medical electricity, but, to make the various treatments clear to those unfamiliar with electrotherapy, a brief account of the different forms of current employed seems essential.

In the treatment of Neurasthenia the galvanic or continuous current, the faradic or interrupted current, and high-potential currents are all utilised. There are many different ways in which these various currents can be employed, and we must deal briefly with these in a little more detail.

A. THE GALVANIC OR CONTINUOUS CURRENT.

When the current derived from a cell or cells, or from a battery, is applied by means of electrodes to a patient so that no interruption takes place in the external circuit, we speak of the current as galvanic. In describing electro-therapeutics Erb says: " Electro-therapeutics consists simply in placing the human body—or usually part of it only—into the external circuit of an electric current; in other words, in submitting it

* *Medical Electricity*, p. 361.

to a current brought to it through the electrodes, and of variable strength and duration, with or without interruptions or other changes."

Galvanism, or the passage of a current, produces electrolytic changes in the tissue between the electrodes. Some of the particles produced by this action are attracted to the positive pole (or, rather, the electrode attached to the positive pole) and are known as "anions," while others find their way towards the electrode attached to the negative pole and are called "kations." Acids and oxygen, for example, are attracted to the positive pole, and hydrogen and alkalies to the negative.

When a galvanic current is passed through the human body, this becomes an electrolyte—that is to say, electrolytic or dissociation changes occur in part of its substance, which is well shown by the blisters produced experimentally on the skin by placing unprotected metal electrodes connected with a source of galvanic current; the one appearing at the kathode containing alkaline fluid, while the other contains acid.

Such experiments as these have established beyond dispute the electrolytic changes which occur in the immediate neighbourhood of the electrodes when a continuous current is passed. The lines of current diffusion around the electrodes can be shown and the depth of the effects produced demonstrated to depend upon resistance of tissue, strength of current, etc.*

Galvanism, as used in the treatment of Neurasthenia, may be applied in two ways:

1. Central galvanisation.
2. General and local galvanisation.

* See diagram on p. 306, Lewis Jones's *Medical Electricity*.

1. CENTRAL GALVANISATION was introduced by Beard and Rockwell as a means of general electrification. In applying this method "the negative pole is placed at the epigastrium, while the positive pole is applied to certain parts of the head (chiefly the vertex and forehead); to the sympathetic and pneumogastric in the neck, and down the whole length of the spine from the first to the last vertebra." As a rule, the treatment lasts about ten minutes, the strength of the current being from two to five milliampères for the head and five to twenty for the spine.

This is a direct application of an electric current to the nerve-centres, and it is claimed that excellent results from its use have accrued in many cases of Neurasthenia. Armstrong,* in a lecture delivered as long ago as 1898, spoke eloquently of the beneficial effects of central galvanisation in cardiac and other neuroses. He maintained that the physiological effects of this method of treatment were threefold—(1) *Stimulating*; (2) *sedative*; (3) *tonic*; that these effects imperceptibly merged into each other, the sedative following the stimulating, and the tonic resulting from a course of treatment, and consequently showing itself more slowly. Again, he says: "During the passage of the current through the body, a certain amount of heat is generated, and there is a transference from one pole to the other, a modification, of the functions, endosmose and exosmose, and a marked acceleration of the process of oxidation. Secretion being largely governed by the vaso-motor branches of the sympathetic, both directly and also through their control of the calibre of the bloodvessels, might reasonably be expected to be influenced by this method. . . .

* *Transactions of the Medical Society of London*, vol. xxi., p. 276.

The structures which it is desirable to bring under the influence of the current are mainly the medulla, the pneumogastric nerves, and the sympathetic system, and with this object in view different observers have adopted various methods of application."

Beard and Rockwell's method may be either stable or labile—that is to say, the electrodes may both be stationary on the areas it is desired to treat, or else one pole (the negative) may be fixed to the epigastrium, while the positive electrode is slowly moved up and down the trunk of the nerve, or the surface of the neck.

When we remember the part which the sympathetic system plays in Neurasthenia, we shall realise the benefit which may fairly be assumed to follow the application of the galvanic current, especially when applied in the above manner. The stimulating and tonic effect of this method is well established and, to quote Armstrong again, "secretion . . . through the calibre of the bloodvessels might reasonably be expected to be influenced by this method."

Capriati* has found by experiments "that the direct current applied along the spine increases the muscular force of an individual, and that such increase persists for one or more days afterwards. Similar results followed applications of direct current to the limb tested, but were less marked; and, finally, they may also be observed after electrification by static charging."

Dr. Poore's results are also worth referring to, as he found in one case "that a patient, after holding out

* "Influence de l'électricité sur la force musculaire," *Arch. d'électricité médicale*, November, 1899. See also the "refreshing action" of the galvanic current, Lewis Jones, *Medical Electricity*, p. 337, and some experiments by Dr. Vivian Poore, *Electricity in Medicine and Surgery*, London, 1876.

his arm horizontally for a period of four minutes with a weight of seventeen ounces in the palm, felt great pain and fatigue in the muscles, and declared his inability to go on, but was relieved at once by the passage of a constant current in a descending direction along the arm."

These observations are of interest in the study of Neurasthenia, on account of the ready fatigability observed therein, and the longer time required for recovery. Capriati and Poore both demonstrated the improvement in nutrition as well as the stimulation produced by the passage of the constant current. Galvanisation has been shown to benefit the wasted neuro-musculature in infantile paralysis;* presumably by increasing the nutrition and stimulating secretory functions. In like manner it will benefit wasted muscles when the faradic current no longer produces effects.

Before passing on to the description of general galvanisation, a remark made by Dr. J. Althaus in a *Treatise on Medical Electricity* is worth quoting. In speaking of Neurasthenia (under the name of "Cerebral Exhaustion") he says: "I look upon galvanisation in these cases as much the best remedy we have at our disposal."

2. GENERAL AND LOCAL GALVANISATION.—*General galvanisation* may be applied to the patient in a variety of ways. Some authorities speak very highly of the results achieved by the use of electrical baths in Neurasthenia; and Lewis Jones, Hedley, and others believe that this method gives better results

* See *An International System of Electro-Therapeutics*, Bigelow and Massey, p. F.25, section F.

than almost any other form of electrical stimulus. Again, general galvanisation may be employed by utilising a large indifferent electrode attached to one pole and sponging the entire bodily surface with a sponge electrode attached to the other pole.

Dealing firstly with electric baths, there can be little doubt of their efficacy in refreshing the tired nervous system, or of their power to promote oxidation, lower the pulse-rate, temperature, and respiration-rate, while increasing the secretion of urine and promoting general metabolism. Against their use is the risk entailed of leakage currents reaching the patient, of the sudden fall of blood-pressure which may ensue should the current be suddenly broken from any cause, and the elaborate precautions which must be taken to ensure effective insulation. In skilled hands, treatment by this method should be safe, but electric baths should only be administered by efficient operators, and their employment by ignorant persons cannot be too strongly condemned.

The baths must be given in porcelain or wooden baths, with all taps, etc., out of reach of the patient, and pipes insulated by the insertion of rubber unions or other adequate protection. The current can be administered in two ways—monopolar or bipolar. In the former one electrode is in contact with the patient, while the other is in the water; in the latter both electrodes are immersed and neither directly touches the patient's body. The current may be derived from a galvanic battery, or from either continuous or alternating electric lighting circuits. Hedley states that an average of 25 per cent. of current enters the body, while the maximum is 50 per cent.

An electric "douche" is sometimes administered, in which a flow of electrified water is directed to the spine and general bodily surface.

Other methods of general galvanisation consist in the application of the constant current to large areas of the bodily surface by means of electrodes, varied to suit the different parts of the body.

The method employed may be either labile or stabile, and the part of the body may be chosen according to the individual case. The method of application most commonly utilised is as follows: a large pad, measuring about 12 inches by 8 inches, and made of several thicknesses of absorbent material, is attached to a metal electrode connected with the negative pole of a battery or other source of supply, and having been thoroughly moistened in warm saline is applied to the epigastrium. A similar pad is placed on the back or loins. A relatively large amount can then be passed through these pads, provided great care is taken that no bare metal touches the skin of the patient.

This stabile application is designed to increase the nutrition and to stimulate the secretions in the splanchnic area, as well as to "tone up" the spinal cord.

Again, the negative pad can be placed on the epigastrium while the positive is placed on the cervical or upper dorsal region; while another method is to place the feet upon a lint-covered pad in a basin of water while the other electrode is applied to the lumbar region.

If it is desired to administer labile general galvanisation, a large flat button covered with flannel or a "roller" electrode is applied to the area over which the movements are to be made, the stationary pad being

placed in some convenient position. A favourite method as regards general galvanisation applied to the spine is to seat the patient upon a large indifferent electrode and to use a button or other electrode up and down the spine; or, if the legs require special treatment, use a lumbar stationary electrode, and treat each thigh and calf with the labile electrode.

General or local galvanisation is indicated in a variety of cases of Neurasthenia.

The majority of these cases will benefit from central galvanisation, a large abdominal pad and either a cerebral or cervical positive electrode. Local symptoms not infrequently decide the physician to adopt either stabile general galvanisation with large epigastric and lumbar pads, or else labile spinal galvanisation.

The constant current produces, as has already been said, greater somatic effects than either interrupted or high-potential currents; but its action is sometimes more local, and is suited to some patients more than others. Cases of Neurasthenia are not uncommon which do not improve on galvanisation, but which do when submitted to the action of high-frequency or static electricity.

The continuous current produces electrolytic, stimulating, and tonic effects; and may be regarded as the most penetrating of the currents utilised in medical electricity. While faradism is useful as a stimulant, and is undoubtedly a valuable tonic to the neuromusculature, galvanism produces chemical changes and osmotic interchanges which definitely increase the oxidation of the tissues involved.

FARADISM.

(a) Local and General Faradism.

(a) The faradic current is an induced current, derived from cells or other source of supply, which has the power of stimulating nerves and muscles. For our present purpose it is unnecessary to study in detail the source of this form of electricity, and we are mainly concerned with its utility in Neurasthenia. We must, however, briefly glance at the effects which the use of this current produces in the normal human being.

When a nerve is stimulated with a faradic current, a muscular contraction occurs at each shock, unless the rate of stimulation is so rapid that a tetanic convulsion is produced. When direct muscular stimulation is given the muscle contracts, this being due to the stimulation of the intramuscular nerves. Faradism of the skin produces pallor followed by hyperæmia; while, when it is applied to the cervical sympathetic, it produces first contraction, and later dilatation, of the vessels of the head and face on the same side, dilatation of the pupil, exophthalmos, widening of the palpebral aperture, and increased cardiac action.*

When the faradic current is applied to large areas of the bodily surface, it is stated to have an important trophic effect. D'Arsonval has shown that a considerable augmentation of the oxidative processes of the body is produced by interrupted currents, even when sufficiently gentle to cause no muscular contractions; and that heat production is increased and modifications

* See article by Bryant in *Textbook of Pharmacology and Therapeutics*, edited by W. Hale White, p. 982.

in the nutritive exchanges brought about by faradism; and an even more marked effect is produced by sinusoidal currents.

General stimulation by means of the induced currents is administered in several ways. Firstly, the patient may sit in a chair, facing the instrument, with his feet on a copper plate connected with one pole, while the operator strokes the entire surface of his body with his moistened hand, or a sponge-covered ball connected with the other pole of the battery. Bryant* gives the following directions: "When the operator's hand is used as the active electrode the sponge-covered electrode should be held in his other hand or placed upon a table and at first only lightly touched by the operator's other hand. This method has the advantage that the operator can gauge by his own sensations the strength of the current he is using: and, further, the flexibility of the hand allows it to be readily moulded to the points of application. The sponge-covered brass ball may be connected with the positive pole of the battery and directly applied to various parts. For the first application a very mild current should be used; subsequently it may be gradually increased until an agreeable tolerance is reached."

Most authorities agree that a beneficial result is often obtained by a few applications of general faradism, the ready fatigability being improved and the general bodily tone increased. With sinusoidal currents, and provided the strength of the current is carefully regulated, there is very little discomfort and no pain such as was sometimes formerly experienced with this method of treatment. Moreover, the particular symptoms from

* *Ib.*, p. 990.

which neurasthenics are liable to suffer, such as insomnia, chilliness, headache, and the like, often disappear after a course of general faradisation.

Local faradisation requires an indifferent pad and an active electrode. The former may be situated wherever convenient, and should consist of a large flannel-covered metal pad, moistened in warm saline and fitting the adjacent part intimately. The latter must vary according to the particular part under treatment and the variety of treatment, whether labile or stabile, and so on. This form of faradism can be applied by means of small electrodes to the cervical sympathetic, the arms, or legs. Little more need be said with reference to this method, as each case requires particular adjustment of electrodes, etc., to meet individual requirements. Thus, a small button electrode will be required when a nerve is being stimulated, while a roller electrode will be needed for local faradisation of the intestines and stomach.

We will now pass on to the consideration of general rhythmic faradisation, and its application to Neurasthenia.

*(b) General Rhythmic Faradisation.**

Treatment by this method consists in the application of a rhythmically interrupted current to large areas of the bodily surface at the same time. The method is comparatively new, and, except in the hands of the present writer, has not been largely used in the treatment of nervous exhaustion. As the results obtained have been exceedingly satisfactory, he feels justified in describing the method in some detail.

* Much of the subject-matter of this section appeared in an article by the author in the *Practitioner* for June, 1914.

It has long been acknowledged that the benefits which accrue from the general application of the faradic current to the bodily surface are many and various. But it is only since the apparatus devised by Professor Bergonié, and more recently modified by Dr. Nagelschmidt, has been placed on the market that it has been possible to apply general faradisation effectively to large areas of the skin surface without unpleasant or even harmful sequelæ.

The problem of assisting elimination without undue stimulation of the various organs concerned has long exercised the ingenuity of the physician, especially as most diseases calling for this treatment prohibit the exhibition of those methods which might assist elimination. As an example of this, mention might be made of patients suffering from renal inefficiency, from cardiac disease, or from venous stagnation from any cause, whose physique prohibits the employment of diaphoretics (whether drugs or baths), and makes it highly undesirable to prescribe violent exercise or drastic purgation. The lymphatic or "venous" type, or the adipose person, whose very portliness often prevents adequate exercise, or who is loath to take a necessary amount of exercise, demands from the physician some method which will enable him to avoid the evil results of his indolence. This is specially the case with over-fat patients, for, their heart-muscle being probably degenerated or infiltrated with fat, they are prevented from stimulating the circulation by active exercise.

These cases, and many more, are now enabled, by the treatment known as "Bergonié's Faradisation," to stimulate circulation, and obtain muscular exercise

without the nervous strain which is produced by active exercise associated with disadvantageous conditions. The method in general use consists briefly in the application of the faradic current (or a modification of this current) to the whole bodily surface, thus producing active muscular contractions, which can be varied in severity, and modified to the particular patient by various devices. The result of this is a direct stimulation of the whole systemic circulation, and a consequent reduction in the amount of stasis in the venous and lymphatic circulation. It will be obvious that a method which will overcome the effects of bodily inertia, or will bring the benefits of active exercise to those prevented from indulging in it by some bodily infirmity (whether the cause be excessive bodily weight, debility, or a paralysed condition of some part of the body), will prove of inestimable value to every physician who is called upon to counteract the evil results arising therefrom.

Attempts have been made for some years to obtain the application of the faradic current, with its stimulating properties, to large areas of the bodily surface for relatively long periods together; but, hitherto, so many disadvantages have attended such treatments that they have proved unsuitable for use. Professor Bergonié, however, conceived the method of applying metallic plates to a specially constructed chair, each plate being connected with a multiple switchboard, and of supplying the current to the various parts of the body by means of these plates. The current was the ordinary faradic current, which was generated by a coil, interruption being made by the usual Wagner hammer. The modification of the plan, first suggested

by Dr. Nagelschmidt, was to replace the faradic system with its uncertainly acting hammer, by a rotating commutator, causing a constant current, which is reversed periodically, and can be regulated by a variable screw.

It is thus possible to deliver an absolutely even current, which can be regulated to each individual case, to any or every part of the bodily surface, without any unpleasant sensations, or without any harmful after-effects in the way of undue fatigue or exhaustion. Further, it can be adjusted so as to make muscular contraction synchronous with the pulse and thus assist the venous system in returning the blood to the heart. No shocks or irregular stimulations are associated with current so supplied, and this method is therefore very useful in cases of *morbus cordis*, or in elderly people, who no longer are able to assist elimination by bodily exercise. It is thus the closest imitation of Nature's own methods, and can safely be prescribed for all cases the symptoms of which point to a need for stimulating the circulation.

METHOD OF APPLICATION.

The general method of application is as follows: The patient wears some clothing which permits free access to the body surface, especially that of the back and seat (a dressing-gown worn back to front serves this purpose admirably), and lies reclining in the chair. The lamps underneath are turned on while the patient is undressing, and serve to warm the plates so that they do not take the heat from the flannel pads. These latter are cut separately to fit each electrode, and are wrung out of hot saline immediately previous to the

treatment. When the patient is comfortably reclining in the chair, four more pads are placed on the front of the body, two on the abdomen, and two on the upper surface of the thighs. On these, again, are placed four electrodes. These are kept firmly in position by sandbags, which are specially made, of varying size and loosely filled with sand, so that they adapt themselves to the varying shapes of the limbs, abdomen, etc.

When the patient is fixed, and the electrodes in position, the motor is started, the switches adjusted, the rheostats placed at "weak," and the main resistance advanced a little. The metronome is started, and the controlling rheostat slowly advanced, a watchful eye being kept on the movements of the milliampèremeter. The patient is aware of the commencement of the treatment by a sensation not unlike that which a gentle surge of blood produces, and which is variously described by different patients. As the current is increased pulsations are noticed, and the sandbags are seen to be rhythmically raised and lowered in time with the metronome. The amount of current which each area of the body receives can be controlled by the ten small rheostats, so that the thighs can receive more than the scapular region, the abdomen more than the calves, and so on. General increase in the total quantity of current is brought about by moving the main rheostat towards "strong."

In this way, then, muscular contractions of the entire musculature of the body are produced, at a rate synchronous with the pulse, and capable of being graduated in strength and duration.

Let us now briefly consider the application of this form of electricity to Neurasthenia.

Nervous exhaustion is characterised by (a) undue fatigue and ready fatigability; (b) visceral disturbances; (c) circulatory disorders; (d) nervous phenomena. These four points are sufficient to indicate the applicability of general rhythmic faradisation. First, the treatment exercises the muscles without fatigue, and strengthens them without tiring the nervous system; secondly, applications of the current to the abdomen assist peristalsis of the stomach and bowels, and increase the local blood-supply; thirdly, the muscular contractions, which are synchronous with the pulse, empty the veins towards the heart, compress the capillaries, and prevent lymph stagnation; and lastly, the increased oxidative processes produced by the circulatory stimulation help to abolish the nervous symptoms, which are so largely dependent upon generalised atony.

These indications are sufficient to give some idea of the efficacy of this method of treatment in Neurasthenia, and it will readily be seen in what manner both brain and spinal cord are likely to benefit from the improved circulation. Again, rhythmic faradisation improves metabolism in both its aspects. It increases anabolism (both on account of the improvement in digestion, as well as the stimulus to the systemic capillaries), and it assists katabolism by increasing the blood-flow through the kidneys, and consequently the total solids voided in the urine. The physical exhaustion which is often met with in this disease, and which is frequently so difficult to ameliorate, is readily amenable to this method, and it is possible to re-educate the listless muscles of the neurasthenic back to active exercise by means of this method.

Sleep is improved, restlessness is diminished, and the

majority of the symptoms dependent upon cerebral and spinal exhaustion will be found to improve when undergoing this treatment. It is astonishing how much passive exercise can be safely undertaken on the chair without producing fatigue; and, if the length of each treatment and the strength of the current is gradually increased, there is no reason to anticipate that fatigue will be engendered.

The appetite is generally much improved, and many patients find they "fancy" their food more, and are able to digest articles of diet which previously had been forbidden luxuries.

Some patients, however, do not improve in this way, and, although beneficial to the majority of neurasthenics, it cannot be said to be a universal panacea for this malady. It must be added, however, that it never aggravates the condition, and, even if it does not benefit the exhaustion and atony, it does not increase it.

The length of treatment varies from three weeks to three months, administered three to six times a week. Such treatment should last fifteen minutes to commence with, and should gradually lengthen to about three-quarters of an hour. Any increase in either the length of time or the strength of the current must be gradual, as also the weight of the sandbags utilised, or fatigue is liable to be produced. If these facts are borne in mind nothing but benefit will be found to result from a course of this treatment.

HIGH-POTENTIAL CURRENTS.

The currents obtained from a static machine and a D'Arsonval's high-frequency apparatus are characterised by possessing a very high voltage, from about 100,000

to 1,000,000 volts, with relatively low milliampèreage. A brief description of the two methods of treatment will suffice for our purpose.

The current derived from a static machine can be utilised in many ways; but in Neurasthenia only two are of any importance. Firstly, charging the patient on an insulated platform from one pole of the machine, the other being grounded (Franklinisation), is by far the most important and widely used of the many varieties of static treatment; secondly, administering an effleuve or breeze to the head or other part of the patient's person constitutes a second or accessory method of utilising the static current.

We will not describe the apparatus here, as descriptions of standard electro-static machines will be found in all textbooks on medical electricity, but we will confine our remarks to the physiological effects produced and the results of applying this form of current to neurasthenics.

Let us glance briefly at the effects of a static current on a normal person. The pulse is accelerated, the blood-pressure is raised, the skin tends to act more freely, the bodily temperature is raised, and the nutritive exchanges are accelerated.* The respiratory rate is likewise increased, muscular power is, at first, increased, but after a series of treatments diminished, and digestive functions improved. This brief survey of the effects produced by charging with an electro-static current will serve to guide us in our estimate of its value in the treatment of nervous exhaustion.

* See *Medical Electricity*, Lewis Jones, p. 339, also *Therapeutic Electricity*, by Hedley, p. 63, and *High-Potential and High-Frequency Currents*, by Snow, chapter .viii, p. 83, for accounts of the electrophysiology of static currents.

Static treatment undoubtedly improves the feelings of most neurasthenics, temporarily relieves the extreme languor and fatigue, and helps insomnia. The increase of bodily warmth, the raised internal temperature ($\frac{3}{10}$ of a degree, Vigouroux), the sedative and, in some cases, actual soporific effect of the current, all tend to improve the patient's general well-being.

This is what may be called the temporary or superficial effect, and, as may well be believed, it is sometimes of great assistance in the immediate treatment of patients exhibiting great restlessness. The more permanent results must depend upon the effects produced on metabolism, and upon any permanent improvement which the passage of the current is able to effect in the neuromuscular system. We know from experiments* that oxidative processes are accelerated, that excretion is increased (the ratio of urea to the total nitrogen is raised), and that the effects on the cardiovascular system are stimulating; but when we come to consider in what manner the central and sympathetic nervous systems are improved in Neurasthenia by the passage of a static current, we find a much more difficult problem.

It may be that the current stimulates the cells of the brain and cortex to normal activity, and increases the conductivity of the nerve-trunks; or, again, it is possible that some portion of the high-potential current remains behind and increases the electric charge which is normally present in the

* Jallabert, Picciano, and Truchot experimented with the static current, and demonstrated the raised blood-pressure produced by the current, the rapidity of growth of animals when subjected to Franklinisation, and the general augmentation of muscular strength after charging with the static current.

body.* In many ways static charging is akin to recharging an accumulator, although such a simile is purely fanciful. It is said that high-potential currents do not penetrate deeply into the body, and only exert a surface influence; but I am not aware of any evidence in support of this view, neither does it seem to agree with the marked changes in bodily conditions which are noted after the passage of a static current.† It is possible, however, that the increased skin action generated by the current might account for part of the results, such as the augmentation of the pulse and respiration rates, but it is hardly conceivable that this alone can produce all the results which treatment by static charging achieves.

The electric breeze, or *souffle*, which is another form of administering the static current in Neurasthenia, is useful for applying to local areas, such as the vertex, where headache and localised "pressure" exist, but does not call for any detailed description here.

High-frequency currents, or treatment by D'Arsonvalisation, have not so far given any strikingly successful

* A galvanometer shows that there is a normal static charge present in the body. Compare recent work in neuro-electricity, and see an article by Horne Wilson in the *Practitioner* for June, 1914.

† "When we place a patient under the influence of an electrostatic machine, we are in reality submitting him to a current of high potential. We get absolutely the same phenomena as when we pass a galvanic current through a conductor. Consider a section of such a conductor. At the moment of 'make' it receives a perturbation, and immediately it tends to regain its former condition of equilibrium by transmitting the perturbation to the adjacent section. This tendency to return to the neutral state is again opposed by a new perturbation, transmitted like the former one. There is thus a series of perturbations continually renewed as fast as they are transmitted." Guilleminot, *Electricity in Medicine*, pp. 272-273, translated by W. Deane Butcher. See also pp. 213-218 of the same work, for accounts of the physiology of the neurone; also p. 221 *et seq.* for an account of animal electro-genesis.

results in the treatment of Neurasthenia. These currents can be administered in several ways, but the principle underlying the treatment is much the same, whatever method is selected. A large voltage is accompanied by a relatively high milliampèreage, but the frequency of the oscillations is so great that there is no harmful effect produced by the magnitude of the current. It is a little difficult to understand how such large currents can have so little effect.

Hedley* gives the following changes which it is claimed are produced by this current:

1. It facilitates the elimination of waste-products by the kidney;
2. It increases the activity of the organic combustions;
3. It tends to bring about a return to the normal ratio between uric acid and urea;

and he adds: " Speaking generally, its effect in suitable cases is to improve the general condition, nutrition, and ' tone ' of the body, to restore appetite, sleep, and digestion, to induce an increasing energy and capacity for work."

The present writer cannot claim to have had good results from the treatment of Neurasthenia by this method, except in those cases associated with hyperpiesis, where improvement is certainly, in some instances, noticed. In fact, the middle-aged and elderly neurasthenic is frequently the better for a course of high-frequency treatment, preferably by means of the auto-condensation couch. Many of the most troublesome features of the malady, such as headache, vertigo, and

* Quoted in Hedley's *Therapeutic Electricity*, p. 68, from a communication made to the Academy of Science, Paris.

dyspepsia (which are probably more or less dependent upon the increased blood-pressure), are often vastly improved by a few treatments by D'Arsonvalisation. There can be little question that hyperpiesis can be reduced by this means, but the treatment should always be accompanied by coincident remedies designed to make the reductions as lasting as possible.

It is difficult to lay down definite rules as to the choice of the two varieties of high-potential currents, and in practice one frequently has to change from static treatment to high-frequency, if no benefit results from the first method utilised, and *vice versa*. Apart from elderly patients and those with high blood-pressure, the indications for high-frequency as opposed to static are slight. As a general rule the sparse patient, who suffers from headache and general cephalalgia, is depressed and sorrowful in his spirits, and lacks bodily strength, is a type that benefits from static insulation; while this treatment is contra-indicated in plethoric individuals, who certainly derive more benefit from the high-frequency current.

SUMMARY.

Electricity is only one of many therapeutic agents which are at the disposal of the medical man at the present time. It is a powerful ally when a stimulant is called for, and an equally useful colleague when a sedative is required. Another point in its favour is that it can usually be applied for a definite purpose, and more or less locally if desired, without of necessity affecting other and remote parts of the body as, for example, the taking of a drug by the mouth is liable to do. But our knowledge of the action and character

of electrical currents is still so imperfect that much of our prescribing of the different varieties of this agent must be tentative, in the same way that drug-therapy so often is.

The use of electricity as a medical agent is daily becoming more common, and one fears that its use is sometimes rather casual. It is a modern method of treatment, and must be regarded as a real help in counteracting many of the results which accrue from modern conditions of existence. Moreover, it is a safe treatment to use in its many capacities, safe as a stimulant and safe as a sedative, without giving rise to any craving which may be more difficult to subdue than to create.

These uses, however, must be regarded as temporary and palliative; and as constituting one aspect only of electricity. The permanent good which electricity can bring about, and the method of diagnosis and treatment which can be adopted by means of electricity, are by far the most important part which electricity plays in medical practice.

If electricity, for example, can furnish a stimulus which can restore normal workings to the synapses, or can arouse from lethargy some slumbering cortical cells, it must rank as an important therapeutic agent for this action alone. In some such way central galvanisation does stir the dormant sympathetic system, and, if one may use the expression, turn on the switch which connects the upper and lower motor-neurones; while the passage of the current through the cortex may be regarded as stimulating the important areas which form the kinæsthetic zone.

High-potential currents appear to act in some such

way as this, although possibly in a more extended manner. Their action is, so to speak, more diffused and more vague. That they benefit many depressed conditions, and supply a stimulus to replace that which is present in health, seems certain; but our knowledge of how this is brought about is very scanty.

It will be seen from the short accounts of the different methods which have formed this chapter that there are at the disposal of the operator several different methods of applying the current and several different forms of current to apply. Only experience will teach which of these various methods is suitable to any particular case; and it is often necessary to change from one treatment to another if success does not come after a fair trial.

Electric baths, douches, and sprays, are very popular for Neurasthenia, and must be considered when deciding which particular form of treatment should be advised; but they are often difficult to obtain, and are not by any means always well tolerated.

Faradism should not be prescribed, at all events as an initial treatment, where the patient exhibits much hypersensitiveness; but a milder form of general electrification should be chosen to commence with. Many patients require a thorough course of treatment of all kinds—in fact, they must undergo a course of “building-up,” which requires considerable skill to define.

CHAPTER IX

SOME SPECIAL TREATMENTS FOR NEURASTHENIA

THERE still remain to be described some special forms of treatment which are in common use. Many of these are not widely popular and possess a limited applicability, but others, such as hydrotherapy, are of real service both as a general tonic and to counteract individual symptoms. It is therefore incumbent upon us to describe these in some detail, giving the indications for their separate use.

HYDROTHERAPY.

When speaking of the effects of general electrical treatment, we mentioned the alterations in the bodily temperature, pulse and respiration rate, which such treatment was able to produce; and, as the result of these changes, the improvement in the symptoms of the neurasthenic, the increased feeling of well-being, and the added comfort, thereby engendered. We referred to the temporary and the permanent effects which might be produced by different methods, and laid some stress upon the importance of aiming at permanent benefit, rather than resting content with amelioration only. In like manner we may deal with hydrotherapy and its effects upon the neurasthenic,

always bearing in mind that, if a particular treatment is going to be of permanent benefit, the improvement in the general condition of the patient should be steady, and that there should be shown something more than an amelioration of some particular symptom. Physical signs should improve *pari passu* with symptoms; the pulse-rate should approximate more nearly to normal during the course of treatment; fatigue should be lessened; and the reaction from the particular method employed should be satisfactory.

This applies especially to the method of treatment under consideration; for it is possible to do harm rather than good if the method chosen is unsuitable—if we chill, for example, without obtaining an adequate reaction. The tepid or warm pack or sponge, for instance, is not always followed by improvement, and when this occurs it should by no means be continued. This is merely one instance of what may happen if we prescribe hydrotherapy without proper thought and constant supervision; for patients in the irritable condition in which neurasthenics usually exist are, if we may use the expression, on the edge of a precipice, and what is designed to pull them back may, if misdirected, push them onward.

The various methods which comprise hydrotherapy may, so far as Neurasthenia is concerned, be divided into the following groups:

1. *Baths.*

- (a) Temperate.
- (b) Tepid.
- (c) Half-bath.
- (d) Cold bath.

2. *Showers.*

- (a) Tepid shower.
- (b) Hot shower.
- (c) Scotch douche.
- (d) Cold shower.

3. *Packs.*

- (a) Wet pack with friction.
- (b) Dripping pack with friction.
- (c) Local packs.
- (d) Damp pack.

4. *Sponging.*

- (a) Cold.
- (b) Tepid.
- (c) Hot.

1. *Baths.*—The *temperate* bath consists in immersing the patient in a plunge-bath—the water being at a temperature of about 90°. This is a method which is so usual as to be acceptable to most patients, and one which is rarely accompanied by feelings of discomfort even at its commencement. On entering the bath, the patient experiences a sensation of cold, which, however, usually passes off in the first few seconds; and during the remaining time a feeling of comfort is commonly noticed.

The temperate bath should not be unduly prolonged, for fear that chilliness should be engendered; but, on the first feeling of cold, the patient should leave the bath and be subjected to a vigorous rubbing with a rough towel. Unless the patient is unduly weak, a little gentle exercise may be taken after such a bath

as this, and this assists in promoting reaction and raising the temperature. This type of bath is most suitable for the weakly patient, and for those that are unable to stand more vigorous and stimulating treatment, such as douches and cold applications. It is not so bracing as these latter varieties, neither is it followed by such a definite reaction, but it does not throw a strain upon the circulation and is suited for those patients whose vitality is low and who are unable to experience a warm glow after cold-water douches and similar applications.

Closely allied to the temperate bath is the *tepid* bath, but this differs in several ways from the former. First, the temperature is higher (95° to 98°) and the duration of the bath considerably longer, even up to half an hour. Secondly, it is chiefly sedative in its action and has little stimulating power. Thirdly, it should be accompanied by under-water friction—that is to say, a gentle skin massage of the bodily surface, either of the entire body or else of the extremities only.

This form of treatment is apt to produce fatigue and a desire to sleep, if prolonged for thirty minutes; consequently, it is a suitable variety to prescribe in insomnia, and in those cases exhibiting marked restlessness. Again, it is not infrequently followed by feelings of chilliness, which should be forestalled by vigorous rubbing with rough towels and by gentle exercise, when administered in the morning, or by a speedy retirement to bed, if given at night-time.

The *half-bath* is a widely used form of hydrotherapy, and possesses the advantage of being able to be taken almost anywhere. This constitutes a real advantage,

as many of the baths, douches, and showers require elaborate apparatus and a specially fitted institution.

To administer the half-bath, the patient is seated in a bath, in which the water covers the legs and abdomen as high as the waist-line, the temperature of the water, being about 85°. After some minutes of this immersion, the temperature of the water is lowered some degrees, this being made accurate by an arrangement of taps. It is necessary to sponge or pour warm water over the upper part of the body, to prevent the shoulders and trunk from becoming chilled.

Having been briskly rubbed down, the patient is directed to rest in bed, and is not allowed to indulge in exercise certainly for an hour after such an immersion. This form of bath is distinctly sedative and may be used very much as the former varieties, to promote sleep and soothe restlessness.

The *cold bath* is invigorating, stimulating, and should be followed by a brisk reaction. It is hardly necessary to add that it should only be chosen in patients possessing a fair circulation, who are tolerant of cold water, and who experience the reaction.

A plunge bath, half-filled with cold water, is required; the patient enters the bath, is briskly rubbed down with a loofah, and, in suitable cases, dries himself with a rough towel afterwards. Where a reaction is obtained and general improvement sets in this procedure may be gradually lengthened, the patient being encouraged to do some simple exercises on leaving the bath, and to rub his body with his hands prior to using the towel.

Such a régime as this is most bracing, and gives a distinct fillip to the circulation. It should only be prescribed in patients whose bodily temperature is

normal (as a subnormal temperature is a contraindication to any cold-water application) after other means have succeeded in improving the general nutrition and bodily heat. If a first bath of this nature is followed by good results, a course may be prescribed with increasing exercises until the general nervous symptoms improve. In suitable cases the cold plunge is almost certain to be followed by general improvement, and is a most successful form of treatment to adopt. As Ballet points out, "the stimulating and tonic action exerted by cold applications on the nervous centres, and through them on the whole organism, is especially beneficial to sufferers from nervous asthenia."*

2. *Showers*.—The application of a stream of running water, delivered either from a rose-nozzle or from a spray, constitutes a shower. This form of hydrotherapy may be administered in several ways, many depending only upon a difference of temperature.

The *tepid shower* is not widely used and is of little benefit to the neurasthenic. Unless combined with the hot shower or as part of the Scotch douche, it possesses few therapeutic advantages. It leaves the surface of the skin cold, shivering ensues, and some time elapses before the patient feels warm once more. In other words, no reaction follows a tepid shower, and, if prolonged, actual harm may result from the lowering of the cutaneous temperature.

The *hot shower* is likewise of limited application, as it produces skin warmth temporarily, but the reaction is, of course, inverse, and the patient is more conscious of cold once the circulation in the skin has been restored

* Ballet, *Neurasthenia*, p. 308. See chapter iv., part vi., for a description of hydrotherapeutics in Neurasthenia.

to normal. If followed by a cold shower, or succeeded by a cold douche down the spine and over the head, there is little fear of a chill being produced, and the reaction from the second douche is usually compensatory. Again, a douche of cold water may be applied to the head, while the spine is being subjected to a hot shower.

But perhaps the best of these varieties is that known as the *Scotch douche*. The shower commences at a temperature of about 97° , and this is gradually raised until the water becomes hot, about 110° , or even 115° . A hot shower is now being administered, and this is continued for perhaps one minute. The temperature of the water is now lowered rapidly to about 45° , without any intervening temperatures; but this last stage should be quite short, about ten seconds usually being ample.

This is, speaking generally, the most satisfactory form of douche. Most patients will bear this well and react satisfactorily. It combines a sedative with a stimulating action; the patient usually feels better for its adoption, becomes less restless, sleeps better, and gains strength. After each douche, he should rest for about half an hour, and, in cases where night sleep is broken, should endeavour to have an hour's sleep.

The *cold shower*, like the cold plunge, is only suitable for robust patients with good circulations. It improves asthenia, increases appetite, and acts as a stimulant. As Ballet points out, cold water is sometimes so repugnant and so badly borne by patients that the physician has to utilise other forms of hydrotherapy. There can be little doubt that many neurasthenics cannot tolerate cold-water treatment, and obtain no reaction to the preliminary chilling. In these cases it is necessary,

if hydrotherapy is utilised, to adopt the wet pack or half-bath, etc.

Nevertheless, when a patient is asthenic, and able to visit an establishment daily, the cold shower is of very great help; in fact, Ballet says that it is *the* method above all others for these patients. I append the description of the method which Ballet gives. "The shower must be sprayed first on the feet and calves and the back of the body, carefully avoiding the head and neck. Then the patient turns round and the front of his body is played upon. Finally, the water is directed on the feet for a few seconds in an unbroken jet. The duration of the shower-bath should be very short, not exceeding thirty seconds, and if the water be very cold, below 50° F., six or eight seconds will be enough, at least in the beginning of the treatment, to produce the desired therapeutic action. 'Too short a shower-bath has no disadvantages; too long a shower-bath is always dangerous' (Fleury)."

3. *Packs*.—These may be regarded as the mild and safe varieties of hydrotherapeutic treatment. It is generally considered that they are beneficial to most cases of nervous exhaustion, and "may be prescribed without danger in all forms of Neurasthenia."*

The *wet pack with friction* consists in the application of a coarse sheet, wrung out in warm water, to the entire bodily surface. With the patient in the upright position, the sheet is thrown around him, and wrapped closely to the contour of his body. The attendant then rubs his hand all over the sheet for a few minutes, applying a stroking form of massage. This sheet is now replaced by a dry sheet at a suitable temperature, and the

* Ballet, *Neurasthenia*, p. 308. See chapter iv., part vi., for a description of hydrotherapeutics in Neurasthenia.

patient is dried by a second friction of his skin by the hand of the masseur.

The *dripping pack with friction** is applied in a similar manner, with this difference, that the sheet is immersed in cold water and wrapped round the patient's body without being wrung out. He is then rubbed, and subsequently dried with a warm sheet.

After both these mild applications, the patient should take gentle exercise to encourage the circulation. As Ballet points out, they are useful preliminary measures when the douche or the shower is not well tolerated.

Local packs consist in the treatment of some part of the body, or some organ or viscus, by means of a towel or piece of flannel wrung out in water.

A local pack has been recommended for the stomach (applied to the epigastrium), for the hypogastrium and right and left iliac regions, for the liver, and for the spinal column. A pad wrung out in hot, tepid, or cold water may be affixed by several turns of bandage to the part, left in position for a few minutes, and then removed, the area under treatment being carefully dried.

Lastly, some authors recommend the *damp pack*, which consists in placing the patient in a damp sheet, temperature about 50°, and wrapping this intimately around the body. Two thick blankets are then applied and the patient left for about twenty minutes. After a little preliminary shivering, he experiences no feeling of chill, but on the contrary a sensation of comfort and restfulness.

It has been well spoken of for insomnia and restlessness and has given good results in many cases in which "irritable weakness" was a marked feature. It is said

* Ballet, *Neurasthenia*, p. 308. See chapter iv., part vi., for a description of hydrotherapeutics in Neurasthenia.

to succeed in cases where other hydrotherapeutic measures have failed.

4. *Sponging*.—*Cold sponging* is a simple and effective stimulant, and possesses the advantage of being easily applied in the patient's house. The water from a bath is collected in a sponge and allowed to trickle down the patient's spine, the trunk and extremities being subsequently sponged. It is also a useful preliminary before applying more thorough measures.

Tepid sponging is an even milder method and may be utilised in cases confined to bed, or where asthenia is too severe to allow of more stimulating treatment.

Hot sponging possesses few advantages, except in patients suffering from vague and fleeting pains, from rachialgia, or in *arthritic* subjects. It should only be given when the patients are in bed, or the last thing at night, but many of the other methods already described are superior.

A few words are all that are needed to state the results which these methods may be fairly expected to bring about.

Broadly speaking, cold applications are followed by refreshing and stimulating effects; tepid or warm water produces sedative results; while hot applications, alone, may be regarded as producing fatigue and languor. Again, cold applications are perforce of short duration, while tepid water may be applied for a longer period, and warm water, when administered in the form of a "pack," can be endured for even longer. Let us glance briefly at these effects in tabular form:

Stimulating and Bracing.

The cold plunge.

The cold shower.

Sponging with cold water.

Tonic.

The wet pack (secondary action).
Scotch douche.
Half-bath.

Sedative.

The warm douche.
The damp pack.
The warm bath.
The wet pack (immediate action).

It must be remembered that arthritic neurasthenics do not bear cold or even chilled water well, and frequently suffer additional pains and stiffness after its application. This class of patient should never be treated by cold-water methods except with the utmost discretion, and should be initiated into hydrotherapy by mild applications, warm douches, or the half-bath.

EXERCISE AND REST.

Many of the methods which are necessary in treating nervous exhaustion partake of the nature of re-education, for they endeavour to restore those functions, the use of which has been lost, or partially lost, by the onset of the disease. But it is important that any measures designed, for example, to re-educate the muscles should be carefully regulated. Again, the régime, with its regular hours, which forms the basis upon which all wise treatment is founded, exerts a disciplinary effect, highly beneficial to the majority of neurasthenics. They are trained anew to do certain things at fixed hours, to be, so to speak, under orders, and to be subject to be questioned as to their manner of spending the day. Their will is trained concurrently with their body, and their power of concentration improves *pari passu* with their muscles.

Many of the measures referred to above are more in the nature of training, or re-education, than they are of healing or treatment. Exercises, and to a certain extent rest, come under this heading, as opposed to artificial means such as drugs and electricity; for, in utilising the former to restore the normal working of the physical organism, the physician is but laying emphasis upon those measures which kept the patient in good health in former years, with this difference, that they are now regulated in amount, duration, and intensity. *Abusus non tollit usum*, and, even if cerebraesthesia has been encouraged by mental overstrain, and erethism produced by modern conditions of existence, it does not follow that the only cure is complete seclusion and absence of all work. It is more true to say that most cases call for the exercise of the functions of mind and body, *but under the auspices of another person*, so that excesses of any function may be prevented, and the proportion of work and rest, both of mind and body, regulated with the view of preventing atrophy and of gradually training the abused functions back to their normal action.

Patients with extreme asthenia can be treated by very gentle massage, lasting perhaps ten minutes, and then avoiding the tender spots, such as the spine, epigastrium, and the hysterogenetic zones. The time as well as the nature of the massage can be increased, but only gradually, until the patient is undergoing half an hour of massage twice daily. At this stage rhythmic faradisation will be found invaluable,* and it will constitute a more advanced and thorough massage, and will usefully replace to a large extent active exer-

* See the previous chapter.

cise, seeing that this carries with it, certainly at this stage, the risk of nervous fatigue.

These procedures should be regarded as stepping-stones to a return to normal out-of-door exercise. When this is resumed it must, however, be regulated carefully and the length of time in which it is indulged checked by the physician. Intermediate between exercise of the "massage" nature and active exercise comes a large series of gymnastics, such as the Zander, which can be carefully regulated in duration and in degree. The actual localisation of exercise is possible by these means, and the mechanical apparatus is extremely useful in retraining the disused musculature. Only a definite amount of energy is expended by these means, and the tasks imposed are such that they do not produce undue fatigue.

When the patient has been sufficiently re-educated by these methods, he must be encouraged to resume out-of-door exercise, and games, which will keep his interest aroused, are by far the best of these. Lawn-tennis, golf, croquet, and bowls all serve this purpose.

In this manner, the neurasthenic may be encouraged to resume normal life, but not until the symptoms of the malady have disappeared and the physical signs no longer exist must he be allowed to undertake the management of his own health.

The question of rest is equally difficult to decide. It may be taken as a general rule that no exercise for the neurasthenic should be prolonged until fatigue is produced. Rest is imperative before fatigue ensues, for the neurasthenic does not possess the reserve strength or the recuperative power of the man in health.

Rest is beneficial after meals, during the process of

digestion, although some authors advocate gentle exercise at these times. Just as a medicine is remembered if prescribed after meals, and forgotten if prescribed beforehand, so is the post-prandial interval the most suitable for the period of rest.

No hard-and-fast rule can be laid down for the amount of rest required in Neurasthenia; we can only briefly outline the usual plan.

Absolute rest is insisted upon when the neurasthenic condition is in an acute stage, no exertion of any kind being permitted and the patient being waited upon for every essential action. Once this stage is successfully passed, the patient is allowed to sit up in bed for an hour a day, then for two hours, and then for progressively long intervals, until he is allowed to leave bed and be up and about for lengthening periods.

Even at this stage, breakfast should be taken in bed, and the patient should get up at about 10.30 and rest for an hour after lunch and retire after tea. Later still, in the convalescent stage, rest after meals must be kept up until such time as the patient becomes a patient no longer.

It is important, however, that it should be explained to the invalid what is meant by rest. The *real* rest means relaxation of all the muscles, and an entire absence of tension anywhere in the body. This can only be obtained by instructions from the physician and practice on the part of the patient. The benefit which accrues from relaxed rest is enormous, provided it is persevered with and indulged in three or four times in the course of the day, so long as symptoms of fatigue and restlessness manifest themselves.

"Organised rest," as it has sometimes been called,

is of this nature, and is the antidote to the condition of tension produced by the strain consequent upon the onset of Neurasthenia. It is real rest when the patient's head, neck, body, and extremities, are fully supported by the bed, when no one group of muscles is antagonising the action of any other group, when the tachycardia diminishes and rest takes the place of restlessness. This should be explained to the patient when the physician is insisting upon rest, and, once the art of relaxation has been acquired, rest is something more than a word.

Before leaving the subject of "rest," we must refer to the treatment of Neurasthenia by "rest cures," inseparably associated with the name of Dr. Weir Mitchell. The essence of this plan consists in its endeavour to treat both mind and body. It ministers to the mind by isolation from friends and relatives—in fact, by complete severance from home surroundings, the only companion allowed being the nurse in charge of the case; to the body by rest, massage, electricity, and hyperalimentation.

Weir Mitchell, in his work on *Fat and Blood*, deals with this form of treatment in detail, and we will here only describe briefly the outlines of the régime, as originated by him. To his credit be it said that he has invented a method which is certainly successful in dealing with at least one class of neurasthenic—namely, the badly nourished, thin, anæmic patient, generally belonging to the female sex, with cerebral exhaustion and consequently mental symptoms dependent upon this.

Let us deal with the main features of the rest cure individually.

WEIR MITCHELL'S TREATMENT.

ISOLATION.—This is the most important aspect of the cure, and one upon which Weir Mitchell laid the greatest stress. "Once separate the patient from the moral and physical surroundings which have become part of her life of sickness, and you will have made a change which will be in itself beneficial and will enormously aid in the treatment which is to follow," he wrote. The importance of a removal to fresh surroundings with a *trained* nurse for sole companion cannot be overrated; for relatives cannot display the necessary judicious proportion of sympathy and firmness in the same way that a skilful nurse can who is accustomed to dealing with these cases. Again, the constant association with relatives, when a malady of this nature is existent, allows the patient to fall into a groove which encourages egoism and selfishness, and into the habit of depending upon the sympathy and services of others. Further, absolute isolation from the beginning of the treatment permits a regular mode of life, stated hours for the various remedies, and a disciplinary regularity which is of the greatest benefit in re-inculcating method and orderliness.

REST is the second most important feature of the treatment. This must be absolute, at all events at first, and the patient must lie still, not even being allowed the use of his hands. Weir Mitchell insists upon the strictness with which absolute stillness must be insisted upon, as the patient will show a desire to return to normal activity when once the process of repair to the nerve-centres has begun, if "absolute rest

of the intellect, the senses, and the muscular system," has been enforced.

To overcome the disadvantages which are attached to immobility, *massage* is commenced. This must be gentle, at first applied to the skin only, and later to the muscles, and should be carried out by the nurse. In this way the skin is manipulated and the circulation improved, the muscles are stimulated and their nutrition increased.

FARADISM is also applied to produce contractions of the musculature, and Weir Mitchell recommended slowly interrupted currents. It can be administered each day, the massage being given in the morning and the faradism in the afternoon.

DIET.—This consists in overfeeding, milk being the article of food with which the treatment is commenced. Four to five pints of milk are taken daily, in quantities of half a pint every two hours. Later on, say after about a week of this diet, a light luncheon is permitted; and after this concession, the menu is progressively increased, bread and butter being allowed, meat extract, beef-tea, etc., being added as improvement continues. Butter is also, in Weir Mitchell's plan, an important article of diet, and he considers that it should be allowed in generous proportions as the dietary is increased. All drugs are prohibited, with the exception of a necessary laxative, iron if anæmia is present, and extract of malt.

Much of the success which attends this method in suitable cases undoubtedly depends upon the complete isolation and the enforced rest; but, after these have been acknowledged, probably the personal influence of the medical man plays the next most important part.

He should explain sufficient of the *rationale* of the treatment to enable the patient to form an intelligent opinion of the aims and objects of the rest cure; he should pay daily visits to watch progress and encourage by his personal supervision; while his tact and sympathy must be blended with authority and confidence. As the patient improves, so will he realise that the treatment is based upon sound lines and is likely to prove successful.

Such are the bare outlines of Weir Mitchell's rest cure, and the reader desiring further information is recommended to peruse the books and papers published by the late Dr. Weir Mitchell in America, Dr. Playfair in England, and by Drs. Charcot and Bouveret in France.

ORGANOTHERAPY.

We have already referred to the relation which the endocrinic glands bear to nervous exhaustion, and the more recent work which has been done in this important subject. We are here concerned with a brief account of the therapeutics of the internal secretions and the results which have been obtained therefrom.

The thyroid gland naturally first attracts our attention, mainly because more is known of its functions and of the symptoms which manifest themselves when these functions are disturbed. Second in importance come the pituitary body and sexual glands, adrenals and pancreas.

The analogy between many of the symptoms of Neurasthenia and the conditions which arise when the chromaffin system becomes disorganised at once occurs to the observer. There is little definite proof to offer, but the resemblance between, let us say, the vaso-motor

disturbances of Graves' disease and those seen in Neurasthenia is striking. Neurasthenia may be—at all events in many instances—what some writer defined as a “condition of habitual valetudinarianism”; while we are told that old age is associated with, or in some cases prematurely produced by, a diminution or cessation of the normal supply of hormones. Here again we have two clinical conditions, apparently alike; in the one the etiology is uncertain, in the other there is ample evidence that many of its features (*e.g.*, arteriosclerosis) are dependent upon the loss of balance between the different internal secretions. The difficulty from the therapeutic standpoint lies in deciding which hormone is in excess, or, in other words, which requires artificial additions from without, when such a procedure is possible.

This, of course, is the probable cause of the vagueness of the therapy applied to nervous symptoms. Most practitioners are familiar with the improvement which often follows the administration of the extracts of one or other of these glands, but the decision to prescribe these is often a “shot in the dark,” perhaps suggested by some chance similarity between the patient's appearance and a case of definite glandular origin, such as myxœdema.

In this branch of practice, more perhaps than in any other, clinical work completes the work of the laboratory. Founding his method upon the investigations of pioneers in this branch of medicine, the medical man in practice prescribes one or other internal secretion (or combination of secretions) because in some patient he sees reason for concluding that a deficiency or an excess of one or more of the secretions of the endocrine

glands is present. The result is frequently surprising, but our knowledge of the underlying condition is unfortunately often slight.

Of the many preparations upon the market, a few stand out pre-eminently as having given consistently satisfactory results. These are standardised and can be prescribed with the certain knowledge of the exact dose which is being administered. The treatment by these extracts, therefore, is of a more exact nature nowadays than formerly, and the prescriber can rely upon a constant percentage of the active principle in most of the preparations which the wholesale chemists manufacture.

Many cases of Neurasthenia exhibit certain symptoms which may be assumed to be due more to disturbance in the normal relation of the endocrinic secretions than to any disorganisation of the centres themselves, and on more than one occasion in the knowledge of the present writer such symptoms have cleared up in a remarkable manner upon the exhibition of one of these extracts. As an example, a lady suffering from post-operative Neurasthenia, which had remained unchanged for about a year, began to improve rapidly when the extract of the pituitary gland was prescribed. In the course of six weeks to two months all the symptoms had virtually disappeared—the asthenia, backache, and depression were things of the past—and she resumed her normal life.

Such a case as this is striking, for she had been under constant treatment since the operation, but with no marked improvement. Another lady, who had developed Neurasthenia after much illness and sorrow, recovered rapidly when thyroid gland was administered.

It is just to suppose that the cause of the nervous exhaustion had also acted injuriously upon the ductless gland in question, or the nerve supplying that gland. This latter possibility is not hard to understand when we realise how close a relation the ductless glands bear to the nervous system, particularly the sympathetic; and in the case of the adrenals more especially so, for the cells in these glands which supply the active principle (adrenalin) are derived from the nerve-cells of the abdomino-thoracic sympathetic system.

We have said enough to show that the administration of organotherapeutic products is often indicated in Neurasthenia. Cases are frequently met with, when we may infer from the clinical symptoms that one gland is functionally inactive; other patients, while not exhibiting definite symptoms, give the general impression that they would benefit from such a prescription. The recent work in thyroid medication is most striking, and slight degrees of hypothyroidism have, in the past, constantly escaped detection.* The rapid improvement which ensues when the extract of the gland is administered fully confirms the diagnosis.

Thyroid is a most useful medicine in Neurasthenia. It stimulates the circulation and increases the processes of oxidation. It has often been said by authorities in Neurasthenia that the fat neurasthenic is the most difficult to treat, and possibly because he cannot feel really well until his deficiency in thyroid is remedied.

Another type of neurasthenic is equally definite. The depressed, thin, anxious man, with pale face and low blood-pressure, unable to concentrate, and gaining

* See case by Author published in the *British Medical Journal*, June 20, 1914.

pleasure from nothing, is only too often indicative of a faulty balance between those hormones which raise blood-pressure and those which lower it. Improvement is frequently experienced when this balance is adjusted, and clinical experience shows that much benefit accrues from the administration of pituitrin or adrenalin, or from the extracts of the pituitary and adrenal glands. Whatever laboratory results indicate (and it is not unusual for clinical experience to contradict these), the practical experience which comes from treating the individual is sufficient proof that these extracts are able, when administered by the mouth or hypodermically, to supply, certainly to some extent, the absence of the blood-pressure raising principle.

Some authors speak well of preparations containing extracts of all these glands,* and considerable improvement results from the exhibition of a preparation such as Hormotone in suitable cases. It is what Leonard Williams calls a "mitrailleuse," and, charged as it is with "grape-shot" of many kinds, it may frequently hit the mark when a solitary bullet would miss.

Where neurasthenic symptoms commence at times of crisis, such as puberty, the menopause, and even at the catamenia, the administration of extracts of the gonads frequently benefits. A full description of this therapy with reference to gynæcological conditions will be found in an article by Blair Bell.†

As many of the symptoms indicative of Neurasthenia are shared by disturbance of the normal endocrinic balance, this short survey of the place of hormone-

* L. Williams, Harrower, Léopold Levi.

† "The Use of Hormones in Gynæcological and Obstetrical Disorders," *Practitioner*, February, 1915, p. 268.

therapy in the treatment of Neurasthenia has seemed necessary. But so many works have now been published on hormones and their place in medicine, and the subject has been so fully discussed, both from the physiological and clinical standpoints, that we will leave the subject here and refer the reader to these books for a full account of the uses of organotherapy.*

* See *The Organs of Internal Secretion*, second edition, chapter xi., for an account of the relation between nervous disorders and the ductless glands.

CHAPTER X

CONCLUSIONS AND BIBLIOGRAPHY

IN this chapter we propose to offer a résumé of the material collected in the two parts of this volume, to draw certain conclusions now that we have studied the disorder in all its aspects, and to close with a bibliography.

It is a reproach to the curriculum adopted in the medical schools of most countries that so little attention has been paid in the past to the study of functional disturbances. For many years definite methods of treatment have been advocated which, although opinion was divided as to their merits, have had, at any rate, the tacit support, in one form or another, of the medical profession. The time has now come, however, when the prevalence of Neurasthenia has made its recognition and study an imperative matter.

In this volume an attempt has been made to give the broad outlines of the disorder as seen by the two schools—namely, the physico- and psycho-genic, but the views of these schools have been described without criticism.

This place is suitable, perhaps, for a brief criticism of the views described in this book.

We commence, then, with the views held by the originator of the term "Neurasthenia." We have already seen that Beard's work was mainly concerned with the collection of the symptoms of nervous exhaus-

tion. His interpretation of the causes underlying these symptoms was entirely secondary in importance to the grouping into one disorder of these abnormalities, which up to this date had belonged to no clinical entity. To Beard, then, belongs the credit of demonstrating that where nervous exhaustion is present, certain symptoms are to be expected. His views as to etiology have remained unaltered, or only slightly modified, so far as one school of thought is concerned.

These views were responsible for the inclusion under the term *Neurasthenia*, of symptoms, later to be separated into "Mental Exhaustion" or "Psychasthenia."

Such abnormalities as obsessions, phobias, and anxieties were regarded by Beard as inseparable from nervous exhaustion. That he recognised two main subdivisions of exhaustion (where the mind and the body was concerned respectively) is proved by the two types described under the names *cerebrasthenia* and *myelasthenia*. But beyond this his views do not help us in understanding the causation of the disorder. So far as the physical agencies already discussed can produce this malady, Beard's work was inclusive of almost every cause which can be blamed for producing or contributing to the disease. The lowering of the nervous potential by exhausting illnesses, such as influenza, the poisoning of the nerve cells by the factors described in Chapter II. (Part I.), and the actual production of the symptoms of nervous exhaustion by such causes as "stress of modern life," were all dealt with by Beard in his writings.

But so far as the school headed by Beard was concerned, all mental symptoms which complicate or accompany nervous exhaustion were regarded as the

result of physical agents, while the other side of the picture—namely, the possibility that mental symptoms, or even physical abnormalities, might result from mental causes—received little recognition, except to the extent of a vague admission that the absence of adequate mental rest, and the anxiety inseparable from urban as opposed to rural means of livelihood, might contribute to the general exhaustion. It is small wonder that a reaction to this view should set in, and a school arise which loudly declaimed the opposite—namely, that Neurasthenia was caused by abnormal mental processes, which produced the disorder by means of the mental mechanisms referred to in Chapter VII. (Part II.). The work of Janet marked the first step towards the recognition of the psychical etiology of this disease, because it offered to the student of functional nervous disorders a theory which suggested that the mental symptoms of nervous exhaustion might be produced by mental causes. To this group of symptoms—*e.g.*, phobias, obsessions, impulsive acts, “loss of the sense of Real,” etc.—Janet attached the name “Psychasthenia.” It will be seen, therefore, that he had split off the mental symptoms of the exhaustion-syndrome, and—of greater importance—he had suggested a conception to account for the occurrence of the symptoms which he had included under this heading. This theory was concerned with the existence of a “molecular dissociation” in the mind, which so weakened mental functions that the individual lost touch with his environment and developed the mental symptoms of Neurasthenia.*

* Janet divided functional nervous disease into three: Hysteria, Psychasthenia, and Neurasthenia. In the first division he attributed the symptoms to a “molar dissociation”—*i.e.*, a splitting *en masse*

Janet's collection of these under the term "Psychasthenia" was a valuable help in the sorting of the heterogeneous symptoms of nervous exhaustion. His hypothesis to account for their production is not, perhaps, especially convincing. He regarded the occurrence of the disintegration as due to the generalised exhaustion present in these cases. The work of Freud, on the other hand, unquestionably helps us most in this respect—namely, that he suggests the mechanisms by which this dissociation occurs, and so far as the classification of the functional disorders is concerned great steps have been taken since Freud first published his conceptions.

Nevertheless, in all this work dealing with the functional neuroses, in the latest classification of these disorders, the fundamental question of exhaustion remains unsettled. It may be taken for granted that most authorities concur in the mechanism of such disorders as hysteria and anxiety neurosis which Freud has advanced, and this mental machinery which leads to the appearance of symptoms is, at the moment of writing, almost universally admitted. We must empha-

of the personality of the sufferer with a resulting dissociation. In the second disorder he believed that the dissociation was more in the nature of a molecular dissociation, a condition in which the elements entering into phenomenal consciousness had become separated. The result was seen in the inability of the patient to enter into touch adequately with the real. Thus, these patients can deal in a satisfactory manner with the events belonging to the imagination, but not to analogous occurrences in the actual. Neurasthenia, however, was regarded as due to a physiological nervous exhaustion.

This conception was the first step towards a recognition that mental causes might play a part in producing mental exhaustion; although prior to this Charcot's work had established the psychogenic cause of hysterical phenomena. Subsequent work has carried us a step farther in that attempts have been made to show that mental causes may produce bodily exhaustion.

sise here that Freud's work can be said to consist of two parts in essentials, his theory of mechanisms and his sexual theory. The former is quite capable of existing without the latter, and, even if the sexual theory is denied *in toto* the theories dealing with the production of the symptoms of functional nervous disease—that is to say, Freud's mechanisms, the elements of repression, of complexes, of conflicts, of indirect manifestations, etc.—so well explain the facts of these disorders as they are met with, that little doubt can remain of their value.

But where in these conceptions does Neurasthenia exist? We have mentioned earlier in this volume that the modern school of psycho-pathologists regard Neurasthenia as the result of mental conflict, and have discarded altogether the physical causation theory. In doing so they have limited, it is true, the word to a sense not formerly employed. They regard nervous exhaustion (used in the manner in which we have in this volume) as including two conditions:

1. Neurasthenia.
2. Chronic nervous exhaustion.

The former is, according to this school, always encountered in young adults and invariably associated with masturbation, but the condition is not regarded as the physical result of this act, but as the result of the psychical mechanism involved. The latter, in contradistinction, is seen in older people and is "usually traceable to some exhausting influence on the nervous system."*

* *Mind and its Disorders*, by W. H. B. Stoddart, third edition (Lewis), London, p. 216.

We need not emphasise that it is not in this sense the term Neurasthenia has been used here. We understand by this term an exhaustion which cannot be limited to the one etiological factor just referred to; neither can we satisfy ourselves by clinical experience that the factor of auto-eroticism enters into all these cases. It follows, therefore, that we have included in the term both the "Neurasthenia" of Freud and the "chronic nervous exhaustion." Further evidence may allow us to subdivide still further this disorder, but at present we must regard the term as covering cases in which the sexual factor may be present, as well as those in which the causation of the malady is obviously different. And in this we are supported by questions of practice, for it is admitted by the Freudian school that Neurasthenia (used in their meaning) is not always suitable for treatment by the method of psycho-analysis. "Chronic nervous exhaustion" is admittedly a disorder of multiple causes, including the factors outlined in Chapter II. (Part I.).

We are therefore forced to the conclusion that, if many cases of Neurasthenia due to auto-eroticism exist, their treatment should be by means of psycho-analysis, but this leaves us with a large number of patients who cannot, owing to various circumstances, be treated by this method. It is more especially with these, then, that methods of treatment, other than by means of psycho-analysis, are concerned. The assumption seems justified, moreover, that some cases of nervous exhaustion are physical in origin, and therefore demand physical treatment.

What has just been said in no way prohibits the conjoint use of mental and physical methods of treat-

ment; indeed, such combination therapy is probably the ideal treatment, certainly for many cases. The utility of psychological analysis is undoubted in untangling the mental troubles which so commonly accompany the *status neurasthenicus*. But the remedying of such abnormalities as a displaced viscus, a stagnant circulation, a deranged digestion, or a toxæmic bowel, by the appropriate physical methods is of the greatest assistance. It seems obvious that the employment of physical remedies offers the speediest road to health, where such abnormalities exist; neither does it seem necessary to insist that, even if the primary cause of all the abnormalities is a mental conflict, treatment must be confined solely to psycho-therapy. Improvement must be sought by all methods, even if it means that we sometimes treat effects rather than causes. So do we find a place for all rational therapies in the treatment of nervous exhaustion. What has been said on the subject of treatment implies an acquaintance with subjects the practitioner has often had little opportunities to study. But although many of the methods described in Part II. are either too technical or require too costly an apparatus, this is not necessarily the case for all varieties of these treatments. As an example, among the mental methods, while psycho-analysis is too difficult for practice except by experts, treatment by persuasion, suggestion, and re-education is both possible and essential to anyone who essays the treatment of the neurasthenic. In fact, the attitude of the physician in the management of the case, his capacity of inspiring confidence, and the right admixture of sympathy and encouragement, rank second only in importance with the most technical psychotherapy.

Electrotherapy, again, requires complicated and expensive apparatus, which is usually not available for the general practitioner; but even in this realm of treatment, help can be found in the simple galvanic current obtained from cells. From a relatively inexpensive and portable apparatus the operator can administer labile or stabile galvanism to the spinal region, to the epigastrium, to the cervical sympathetic, or to the extremities, while a faradic coil will enable interrupted currents to be applied in a similar manner to the various parts of the body. As a means of assisting treatments as a whole, these simple electrotherapeutic procedures are of considerable value.

To enable the reader to study these forms of treatment in detail, the names of books dealing with treatment by suggestion, persuasion, and psychological analysis, also with such subjects as electricity in medicine, have been included in the Bibliography.

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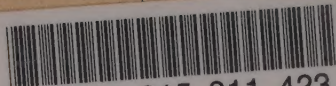
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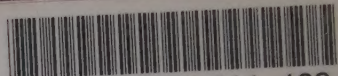
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